

Longitudinal Surveys of Australian Youth

Research Report 54

School Non-completers: Profiles and Initial Destinations

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EXECUTIVE SUMMARY

This study examines non-completion of Year 12 at school for a nationally representative sample of young people who were 15 years old and still attending school in 2003. The study explores relationships between non-completion and selected socio-demographic and school-related factors, and changes in rates of school non-completion from the early 1980s to 2005. There is a particular emphasis on how socio-demographic and school-related factors over that period have influenced early school leaving. This study also examines the use of an alternative measure of ‘school completion’, which incorporates participation in a vocational education and training program after leaving school.

School non-completion in 2005

The study finds that those most likely to have left school early between 2003 and 2005 are Indigenous young people, young people from non-nuclear families, those whose parents worked in blue-collar occupations or were other than university-educated, those who were from non-metropolitan locations, those born in Australia, those who were low academic achievers and those who were from government schools.

When the unique contributions of the socio-demographic and school-related factors are teased out, not having an intention to complete school, coming from a non-nuclear family, being a below average academic achiever, being male, having an unfavourable attitude towards school and perceiving student–teacher relations as unsympathetic are all associated with a greater likelihood of non-completion.

Common reasons given for having left school without completing Year 12 include having a job or apprenticeship to go to or wanting one, and not liking school. Those who leave for ‘positive’ reasons — for example to take up an apprenticeship — have more successful transitions, such as being in full-time work or study, than those who leave for ‘negative’ reasons, such as not liking school.

School climate factors, such as perceived poor student–teacher relationships, poor teacher morale and poor student behaviour, contribute to early leaving. These factors appear to explain some of the early leaving that, in previous research, was attributed to school sector. Positive student–teacher relationships appear to exert an influence beyond school in that early leavers who had experienced favourable relationships appear more likely to pursue a vocational alternative.

The changing profile of school non-completers

The study examines the socio-demographic and academic profiles of young people who left school without completing Year 12 between the early 1980s and 2005. The following groups consistently displayed low school non-completion rates: females; young people with parents in high-skill white-collar occupations; young people with university-educated parents; those who attended independent schools; those from metropolitan areas; those with parents from non-English-speaking backgrounds; and those with high levels of reading and mathematical literacy.

Throughout the period under consideration, however, the magnitude of differences between some groups changed. In particular:

There was a reduction in absolute differences in the non-completion rates of:

- males and females (occurring between the late 1990s and 2005);
- young people from high-skill white-collar and low-skill blue-collar families;
- young people with university-educated parents and those whose parents had not received post-secondary education (occurring between the early 1980s and the late 1990s); and
- young people who had attended independent and government schools (occurring between the early 1980s and the late 1990s).

The magnitude of differences between the following groups fluctuated over time:

- young people from metropolitan and non-metropolitan areas; and
- young people from different ethnic backgrounds.

By 2005, the divide between the following groups had blurred:

- young people from blue-collar and white-collar families; and
- young people whose parents had not received post-secondary education and those whose parents had received non-university post-secondary education.

Post-school plans

Young people in the 2003 cohort reported quite ambitious career aspirations, with approximately two-thirds expecting to be employed in professional or paraprofessional occupations by age 30. In the current labour market, such jobs account for one-third of employment opportunities. It seems that many young people will need to refine their career goals further. Conversely, relatively few young people expect to have clerical or labouring jobs compared with the employment opportunities available.

Most young people in the cohort described educational plans that are consistent with their career aspirations. Some, however, who expect to gain less than professional or paraprofessional jobs intend to enter university; that is, they are planning more education than is required for the jobs they anticipate. Approximately one-fifth of young people and one-third of intending tradespersons have an education plan that is below the level required for their intended jobs.

The initial destinations of school non-completers

Main activities

The early post-school education, training and labour market activities of school non-completers were examined at age 17, a time when many of their contemporaries were nearing the completion of senior secondary school. The majority of school non-completers were fully engaged in employment, education or training (80% of male non-completers and 58% of female non-completers). Female non-completers were more likely than male non-completers to be partially engaged in employment, education and training (23% and 8%, respectively), unemployed (12% and 9%, respectively) or not in the labour force (7% and 4%, respectively).

Occupations

There are marked gender differences in the occupations undertaken by employed non-completers. Employed males are considerably more likely than employed females to be in skilled occupations (such as trades and related work) and are less likely to be in unskilled occupations (such as elementary clerical, sales and service work).

Education and training

Gender differences are also evident in the level and nature of education and training undertaken by non-completers in the early post-school years. Male non-completers are four times as likely as female non-completers to participate in apprenticeships, while females are more likely than males to participate in traineeships and other VET courses. Overall, male non-completers are more likely than females to participate in VET after leaving school (60% and 45%, respectively). Male non-completers are concentrated in engineering and related technologies, and architecture and building, while female non-completers are concentrated in management and commerce, and food, hospitality and personal services.

Vocational alternatives to post-compulsory schooling

In the Adelaide Declaration (MCEETYA, 1999), the education ministers of Australia called for young people to complete ‘Year 12 or a vocational equivalent’. This study has provided an examination of the non-completion rate when a vocational alternative is included, although the alternative used in this report is participation in VET after leaving school, as early school leavers in the cohort were still too young to have completed a course of study at Certificate II. Nevertheless, when this vocational alternative to Year 12 is considered, the number of young people who are ‘at risk’ of making a poor transition from education is reduced. The non-completion rate drops from 16 per cent to 7 per cent.

When a vocational alternative to Year 12 completion is modelled, some of the associations with school non-completion are reduced or removed. Gender is no longer a factor, as both males and females have a non-completion/non-participation rate of 7 per cent. Parent’s occupation ceases to have a significant effect, but young people whose parents had not completed secondary school retain a greater risk of non-participation in post-compulsory education and training. Being from an English-speaking background and coming from a non-nuclear family continue to dispose young people to non-participation in senior secondary schooling or a vocational alternative.

The vocational alternative is clearly an important one for some young people, especially males.

Achievement domains and school non-completion

Low achievement in all four academic achievement domains — reading literacy, mathematical literacy, scientific literacy and problem solving — is associated with an increased likelihood of school non-completion. When their influences are modelled jointly, low achievement in reading literacy and mathematical literacy are strongly related to non-completion, but scientific literacy and problem solving do not make substantial independent contributions in explaining early school leaving.

School Non-completers: Profiles and Initial Destinations

1. INTRODUCTION

The National Goals for Schooling (MCEETYA, 1999) expressed the intention that:

All students have access to the high quality education necessary to enable the completion of school education to Year 12 or its vocational equivalent and that provides clear and recognised pathways to employment and further education and training.

Many initiatives have since been taken by the Commonwealth and State and Territory governments to ensure that the goal of greater participation in education is met.¹ In some States (South Australia and Western Australia) the minimum school-leaving age has been increased. In Victoria a new school certificate, the Victorian Certificate of Applied Learning (VCAL), has been introduced as an alternative to the Victorian Certificate of Education (VCE). The VCAL includes work-based learning as one component. There has been very rapid growth in participation in vocational education and training in upper secondary schools from 16 per cent in 1996 to 48 per cent in 2003 (Anlezark *et al.*, 2006, p. 10). In addition to vocational courses being offered in schools, participation in school-based new apprenticeships has increased. These changes reflect desires to increase school retention and to ensure that the programs offered by schools meet the needs of a more diverse student population. A range of other initiatives have been established to help school leavers make successful transitions, such as the provision of career advice in junior secondary schools and support for students who have left school.

In addition to changes in curriculum options for senior secondary students, the post-school VET system has expanded considerably over the period considered in this report. Between 1991 and 2000, enrolments in the VET system increased from 1.0 to 1.8 million (NCVER, 2002). Over that period there has been steady growth in VET participation from 19 to 29 per cent of the cohort of 15 to 19 year-olds, the group of particular interest in this report. This level of participation has occurred for both early school leavers and school completers. Brookes (2004, p. 9) showed particularly strong growth in traineeship participation between 1996 and 2003. These data on participation in post-school VET include both school completers and non-completers. Participation in non-apprenticeship VET, especially at higher AQF levels, is dominated by school completers, while the majority of Australian Apprenticeships are taken by non-completers. Thus, post-school VET is an alternative to school completion for many students. Because of the growth in VET participation, rather than report only on school completion, participation in alternatives to school completion warrants consideration. The MCEETYA goal cited above also invites this consideration.

In 2005, the apparent school retention rate was around 75 per cent and just over 82 per cent of young adults had completed Year 12 or an equivalent qualification (ABS, 2006). Apparent retention rates are used as indicators of the effectiveness of school systems, calculated by dividing the number of students in Year 12 in a given year by the number of students in Year 7 five years earlier. It has been shown, however, that many factors influence these rates. Migration at national and state levels, and part-time study and grade repeating in upper secondary schooling influence the apparent rate (Lamb & Bain, 2004). Ryan and Watson (2006) also made adjustments to the published rates by taking into account factors similar to those identified by Lamb and Bain. In addition, they reported that one of the most significant factors influencing school non-completion was the strength of the labour market for young people — an observation supported by Chapman and Gray (2002). The availability of non-school education and training programs also influences senior school participation. Thus, they found that non-school system factors influenced participation in Year 12 and, on that basis, Ryan and Watson advised that Year 12 completion rates should not be used as

¹ See the summary table (p. 8) in the forward to Kellock (2005). See also Figgis (2004) for a summary of programs that broaden education and provide transitional support.

measures of system performance. They suggested that a notion of educational attainment broader than Year 12 completion needs to be considered.

Previous research on school non-completion

Consequences of low levels of educational attainment

School non-completion has consequences for the individuals who do not develop the levels of skills required in the labour market and for the Australian economy for which growth is restrained by skills shortages.

The consequences for individuals have been the subject of many investigations. The OECD (2005) reported on comparative international outcomes for individuals. While it is apparent that the employment outcomes for individuals with low levels of education are poorer than for those with higher levels of education, it is also clear that in countries with higher levels of unemployment, employment opportunities are least available to the less educated. The implications in Australia are that if economic conditions deteriorate, the less well educated will bear the brunt of reduced employment opportunities. The OECD report also shows that the employment penalty to non-completion is much more severe for young women than it is for young men.

Long (2005) found that, despite a decade of sustained growth in the Australian economy, many young people continue to experience difficult transitions. He noted that 23 per cent of school completers who were not involved in further study were either working only part-time, unemployed or not in the labour force. For non-completers, the figure was 43 per cent, with early leavers in a worse position than later leavers (45% for early leavers compared with 40% for other Year 12 non-completers in other than full-time labour market engagement).

The impact on the Australian economy of low levels of skills formation has been identified by Access Economics (2005). They projected that greater growth in Australia's economy would flow from an increase in Year 12 retention or its vocational equivalent to 90 per cent. Their findings were endorsed by the Business Council of Australia and the Dusseldorp Skills Forum (2005) which jointly suggested a range of policy initiatives to increase and broaden educational participation.

In order to meet the suggested participation goal and to target many of the proposed initiatives, it is necessary to identify at as early a stage as possible those young people most likely to withdraw from education prematurely.

Characteristics of school non-completers

In research conducted on cohorts of young people who were in middle to upper secondary school from the late 1970s to the late 1990s, a range of background, individual, and school factors have been associated with school non-completion (Lamb, 1996; Marks & Fleming, 1999; McMillan & Marks, 2003; Winefield *et al.*, 2005).

Among background factors, low socioeconomic status (SES) and low levels of parents' education are associated with a tendency to leave school early, while people born in non-English speaking countries are more likely to complete Year 12. Indigenous young people are more likely than non-Indigenous youth to leave early.

Among individual factors, gender, achievement, location and attitudes to school have been identified as significant predictors of non-completion. Since the early 1980s, males have been much more likely than females to leave school early. Low achievement at Year 9 is also very strongly associated with non-completion. Young people from non-metropolitan locations are less likely to persist to Year 12 than are metropolitan-based youth. Young people with low levels of satisfaction

with school and with teachers and teaching practices are less likely to complete Year 12 than are those with more favourable attitudes (Marks, 1998).

The influence of achievement on completion is apparent in other countries. In Canada, 87 per cent of young people had completed secondary schooling by age 19, but completion was related to reading achievement. Almost all young people with the highest levels of reading achievement on the PISA assessment at age 15 had completed secondary school, while only 62 per cent of those in the lowest reading achievement group had done so (Knighton & Bussière, 2006).

De Broucker (2005), also reporting on the Canadian situation, found that males made up over 60 per cent of the young adults with low levels of education. He noted that this situation was observed in countries without strong vocational programs in secondary schools. The labour market consequences for females who do not complete school are more severe than they are for males, although caring for children is a common activity for young women who are out of the labour force (Hillman, 2005).

Like Australia, Canada has a high immigrant population and, in common with Australia and in contrast to many other OECD countries, children of immigrants tend to be school completers (de Broucker, 2005). Cresswell (2004), using Australian data from the PISA 2000 survey, found that children of immigrant parents had aspirations for higher levels of education than did native born young people.

Individual schools and school sector have been identified as predictors of non-completion (Lamb, 1996; Le & Miller, 2002; Marks & Fleming, 1999; McMillan & Marks, 2003). There is a consistent finding that students from government schools are now less likely to complete Year 12 at school compared with students from the Catholic and independent school sectors.

The factors described above have been shown to have exerted an influence on school non-completion. It is now desirable to examine trends in the relative influences of these factors as there have been many changes in the proportions of young people persisting at school, in the diversity of programs that schools offer, in alternative vocational courses and in the labour market.

Changes in the profile of school non-completers

Trends in apparent retention by gender show that, while retention for both males and females rose sharply between the early 1980s and the early 1990s, the gap between male and female completion rates widened to 11 percentage points in 2005 (ABS, 2006). Since 1992, the apparent retention rate declined but recovered to almost the 1992 level by about 2002.

Using data from the Australian Youth Survey (AYS) and Australian Longitudinal Study (ALS), Lamb (1996) and Lamb, Dwyer and Wyn (2000) showed that, between the early 1980s and the mid-1990s, there were changes in the influences of background, individual and school-related factors for both males and females. The factors that emerged consistently between the studies as predictors of non-completion were being male, coming from a rural or remote location and being from an English-speaking background.

For males, the disadvantage of having a father in a lower status occupational category increased, while for females the disadvantage abated slightly. For both males and females, the school-completion advantage for young people from a non-English speaking background declined over the period. For males and females, living in a non-metropolitan location was significantly predictive of non-completion and the effect strengthened over that time, net of other influences.

Individual ability was included in models developed by Le and Miller (2002) using data from the 1961 and 1970 birth cohorts of Youth in Transition (YIT). They found it to be highly predictive of persistence at school. Le and Miller found that there were differences in the factors that predicted

school non-completion between the late 1970s and the late 1980s. They noted a slight decline in the very strong influence of ability and a decline in the influence of family background factors including occupational status and parental education. They modelled location as a school level variable and found that it exerted a moderately strong negative influence on school completion initially but became non-significant for the later cohort (Lamb et al., 2000).

Destinations of school non-completers

The destinations of young people who do not complete school comprise: employment, on a full- or part-time basis and this may include Australian Apprenticeships; further study usually through a TAFE institution and usually at a lower certificate level; unemployment; or being out of the labour force.

Much of the research on school non-completion shows that non-completers have more difficult labour market transitions than do school completers. Using data from the LSAY Y95 cohort McMillan and Marks (2003) painted a more positive picture for non-completers. They pointed out that in a given calendar year, a greater proportion of early school-leavers were in full-time employment than were later leavers or school-completers who had not undertaken post-school study. This indicates that exposure to the labour market had been productive for the early leavers. What is not clear is whether a similar level of labour market exposure would be more or less productive for the later leavers or school-completers. Marks (2006, p. 41) showed that school-leavers who do find full-time employment on leaving school tend to have successful longer term labour market experiences. It is clear, however, that non-completers have greater difficulty than school completers in securing an initial position.

Lamb *et al.* (2000), using AYS and ALS data, reported that, even though school retention rates increased through the 1980s and early 1990s, with fewer non-completers entering the labour market, their transitions became more difficult because of the collapse of the youth labour market. Many of the jobs that previously had been available to non-completers, such as those in the retail sector, were being taken up on a part-time or casual basis by young people who were continuing their studies, or perhaps older workers. Over this period, unemployment among non-completers rose from 14 to 30 per cent for males and from 23 to 37 per cent for females, with a further 10 per cent of females being out of the labour force. For females, the penalty for non-completion has been particularly severe.

Lamb and Rumberger (1999) reported that, among Australian non-completers, two-thirds of males undertook some form of post-school education or training (mostly apprenticeships) and that one-third of female non-completers commenced some form of post-school study. These proportions are much lower than the rates of post-school study for school completers.

An interesting finding from the McMillan and Marks (2003) study was the labour market experience of non-completers from non-English speaking backgrounds (NESB). NESB individuals were much more likely to complete school and also much more likely than young people from English-speaking backgrounds to enter further, especially higher, education. Those NESB young people who did leave school early had less favourable outcomes than young people with an English-speaking background.

Interactions among early achievement, intention to leave and school non-completion

Much of the research on non-completion has identified low academic ability as a characteristic of early leaving. In past LSAY studies, academic ability was operationalised through measures of mathematics and reading literacy assessments. The Y03 cohort undertook the PISA assessments in the first wave and these included scientific literacy and problem solving assessments in addition to the mathematics and literacy testing.

Khoo and Ainley (2005) demonstrated that having an intention to leave school mediated ability and non-completion. Intention to leave was very strongly related to the final decision to leave school. Mediated relationships like these are of policy interest because, while it may be difficult to alter assessed achievement, intentions may be amenable to cognitive interventions – perhaps through career education programs – and therefore an increase in Year 12 completion or its equivalent could be achieved.

Research questions

The purpose of this research report is to identify factors associated with school non-completion and to describe the initial destinations of school non-completers. The report addresses four broad questions:

1. How many students leave school without completing Year 12 and what student and school characteristics are associated with school non-completion?
2. Has the profile of school non-completers changed between the early 1980s and the mid 2000s?
3. What are the initial education, training and labour market destinations of school non-completers in the mid 2000s? Do these destinations differ from those of earlier cohorts?
4. How many young people are not engaged in learning or earning at age 17 and how do they differ from other young people?
 - a. How many young people leave school without completing Year 12 or a vocationally equivalent program and what are their characteristics?
 - b. How many young people leave school without completing Year 12, a vocationally equivalent program or without being fully engaged in a combination of work and study, and what are their characteristics?

Data and analysis

The data used for this report are based upon a sample of 8691 young people who were 15 years old in 2003 (the Y03 cohort). The sample initially participated in the Programme for International Student Assessment (PISA) in 2003 and subsequently formed part of the ongoing Longitudinal Surveys of Australian Youth (LSAY). The young people's experiences up to 2005, when they were 17 years of age, are examined in this report. A further description of the sample design and data collection is provided in Appendix 1.

Longitudinal data from projects such as LSAY are especially valuable for tracking the education, training and labour market pathways undertaken by young people from year to year, and linking this information to their social and educational backgrounds. Because the same young people are surveyed from year to year, a detailed picture can be built of how experiences at one point in time influence what subsequently happens. In this report, school non-completion is examined in relation to four broad groups of variables:

- socio-demographic background (gender, parents' education, parents' occupation, ethnicity, Indigenous status, and family structure);
- individual-level factors associated with secondary schooling (literacy in the domains of mathematics, reading, science, and problem solving; educational plans and aspirations; attitudes to schools and teachers; Year 12 completion status; and reasons for school non-completion);

- factors associated with the schools that students attended (region, school sector, the average socio-cultural status of students who attended the school, whether the school was a single-sex or co-educational school, teacher morale and student behaviour in the school); and
- post-school activities of school non-completers at age 17 (main activities, occupations, and education and training activities).

These variables are described in detail in Appendix 2. A range of bivariate and multivariate techniques are used to address the research questions, and these are outlined in Appendix 3.

A note on the vocational alternative as equivalent to Year 12 completion

Although the *National Goals for Schooling in the Twenty-first Century* (MCEETYA, 1999) seeks to ensure that all young people have an opportunity to complete ‘Year 12 or its vocational equivalent’, there has been some debate about what level of vocational preparation is equivalent to Year 12. There is support for certificate programs at AQF level 2 to be regarded as the vocational equivalent of Year 12 (Long, 2005), while others have argued that programs at AQF level 3 are more appropriate (Karmel, 2004).

In support of the MCEETYA goal of ‘Year 12 or its vocational equivalent’, MCEETYA (2005) adopted the following measure of Year 12 equivalent attainment:

The proportion of 20–24 year-olds who have completed year 12 or equivalent or gained a qualification at Australian Qualifications Framework (AQF) Certificate II or above.

Thus MCEETYA has endorsed Certificate II as an equivalent of Year 12 for 20–24 year-olds. The present study focuses on 17 year-olds, a cohort of young people who have not yet reached the MCEETYA age bracket at which the ‘completion of Year 12 or a Certificate II qualification’ measure could be applied. One limitation in applying the Certificate II criterion is that more than 10 per cent of VET participants do not know the level of the qualifications they are taking. Removing this group from the analysis would compromise estimates, especially among school non-completers. A second limitation is that, by age 17, relatively few young people would have the opportunity to complete courses commenced since leaving school.

The decision was taken, therefore, to include participation in or completion of any formal post-school education and training program as a vocational alternative to Year 12. This has both advantages and disadvantages. It is likely that some of the commenced qualifications will not be completed, so including all commencements will produce an over-estimate of Year 12 equivalent attainment. It is also very likely that some young people who have left school and not commenced a VET program will do so before they reach age 24. Further, research shows that some of those who have already commenced lower level qualifications will transfer to higher level ones (Curtis, 2007; Sherman, 2006; Stanwick, 2005). Thus, even using the most lenient definition of Year 12 equivalent attainment may well under-estimate ultimate attainment. The use of participation in a post-school VET qualification at any level is necessitated by data limitations and is likely to predict, albeit only approximately, Year 12 equivalent attainment by age 20–24.

Organisation of the report

The next chapter examines the characteristics of school non-completers. Chapter 3 compares data from the Y03 cohort and earlier cohorts in order to examine trends in the characteristics of school non-completers over time. In Chapter 4, the immediate post-school destinations and activities of young people who have left school are reported. Chapter 5 deals with the characteristics of young people who are not engaged in learning or earning at age 17. The final chapter summarises key findings, draws conclusions from them and suggests policy implications arising from them.

2. NON-COMPLETION OF SCHOOL

In this chapter, the proportions and characteristics of young people who do not complete Year 12 at school are reported and models are developed that seek to identify the major factors associated with school non-completion. Not completing Year 12 is a conventional indicator of the non-completion of school. Two alternative indicators of non-completion are reported in Chapter 5. These alternatives are:

- not completing Year 12 and not participating in a post-school vocational program; and
- not completing Year 12, not participating in a post-school vocational program and not being engaged full-time in a combination of study and work.

Measuring school non-completion in the 2003 cohort of 15 year-olds

The measurement of school non-completion, or conversely, the measurement of the successful completion of senior secondary school, is complicated by differences between jurisdictions in the definitions of completion and the award of certificates. In this report, young persons who leave school before reaching September of Year 12 are classified as school non-completers; conversely, young people who attend school until at least September of Year 12 are classified as school completers.

Due to the timing of the most recent data collection (which commenced in July 2005), some current school students from the 2003 cohort of 15 year-olds had not reached September of Year 12 by the time they were interviewed. Students who were in Year 12 at the time of the 2005 data collection were grouped with the school completers for the purposes of this report. Students who were in Year 11 or below at the time of the 2005 data collection were excluded from analysis as it was uncertain whether they would go on to complete Year 12. The number and proportion of young people in each of these categories are reported in Table 1 (shaded rows).

Combining current Year 12 students with school completers may result in a very slight underestimation of the eventual school non-completion rate for the cohort as some of the affected group may leave school before September 2005. Conversely, excluding students in Year 11 or below from analysis may result in a slight overestimation of the eventual school non-completion rate for the cohort if it is assumed that the majority of the affected group will go on to complete Year 12.

Table 1 School completion status in 2005

	Unweighted		Weighted	
	n	%	n	%
School non-completers				
Left school in Year 9	13	<1	18	<1
Left school in Year 10	370	4	399	5
Left school in Year 11	680	8	655	8
Left school in Year 12 (before September)	286	3	259	3
School completers and current Year 12 students				
Remained at school until September of Year 12	4319	50	4357	50
In Year 12 at the time of the 2005 interview; interview conducted before September 2005	2360	27	2382	27
Excluded from analysis				
In Year 11 or below at the time of the 2005 interview	662	8	620	7
Total	8690	100	8690	100

Note: Column percentages may not add exactly to 100 due to rounding.

School starting ages and early years progression policies vary across States and Territories, and this also affected the measurement of school non-completion among cohort members. States such as Tasmania, Victoria, the Australian Capital Territory, and South Australia had relatively large proportions of cohort members who were at school but who had not reached September of Year 12 at the time of the 2005 interview (see shaded rows in Table 2). In Tasmania and Victoria, a large proportion of these students were excluded from analysis as they were in Year 11 or less. Consequently, some caution should be exercised when applying the results in this report to particular States or Territories.

Table 2 School completion status in 2005, by State or Territory of school attended at age 15

	ACT %	NSW %	NT %	Qld %	SA %	Tas %	Vic %	WA %	Aust %
School non-completers	15	18	20	12	16	27	13	14	16
School completers and current Year 12 students									
Remained at school until September of Year 12	45	45	48	65	46	28	42	66	50
In Year 12 at the time of the 2005 interview; interview conducted before September 2005	31	30	27	22	34	21	30	18	27
Excluded from analysis									
In Year 11 or below at the time of the 2005 interview	9	6	4	2	4	24	14	1	7
Total %	100	100	100	100	100	100	100	100	100
Total n	165	2749	61	1639	778	190	2137	971	8690

Notes: Figures shown in grey are based on low (<30) cell frequencies. Column percentages may not add exactly to 100 due to rounding. Based on weighted data.

Characteristics of non-completers of school

Membership in the school non-completion group is tabulated against a range of selected individual characteristics in Table 3 (individual and family background characteristics) and Table 4 (school-related characteristics). Sixteen per cent of young people did not complete Year 12 at school. There are substantial differences from these cohort-average figures for young people with particular characteristics.

Indigenous young people have a much higher school non-completion rate (30%) than the cohort average. Other groups who exhibit relatively high school non-completion are children whose parents work in blue-collar occupations, those from other than nuclear families, young people from non-metropolitan locations and children whose parents had not completed secondary schooling or who held technical or trade qualifications. Males were more likely to be school non-completers than were females.

Of the school-related factors (Table 4), intentions for Year 12 completion exert a major influence on completion status. Of those who expressed an intention at age 15 to complete Year 12, over 90 per cent did so, whereas those who indicated they would not complete Year 12, almost 90 per cent did not complete it. The strong influence of intention apparent in these figures was shown to have operated for the Y95 cohort (Khoo & Ainley, 2005). School sector was strongly related to school non-completion, with 5 per cent of students from independent schools, 11 per cent from Catholic schools and over 20 per cent from government schools not completing Year 12.

A consistent relationship between achievement quartile and non-completion is apparent on all four achievement measures, reading literacy, mathematics, scientific literacy and problem solving. Over one-third of the lowest achievement quartile were school non-completers while fewer than 5 per cent of the highest quartile did not complete Year 12.

Young people with higher levels of school completion included those whose parents were university educated or who were born overseas.

Table 3 Rates of school non-completion by background characteristics

Variable	Category	Non-completion of Year 12 (%)
Gender	Female	13
	Male	19
Indigenous status	Non-Indigenous	15
	Indigenous	30
Location	Metropolitan	13
	Regional	22
	Rural	20
Family structure	Single parent family	22
	Nuclear family	13
	Mixed family	22
	Other	25
Immigrant status	Native students	17
	First-generation students	11
	Non-native students	8
Parental education	University	7
	Technical or trade qualification	19
	Completed secondary	15
	Less than complete secondary	21
Parent occupational category	White collar high-skill	10
	White-collar low-skill	15
	Blue-collar high-skill	20
	Blue-collar low-skill	23
All		16

Table 4 Rates of school non-completion by school-related characteristics

Variable	Category	Non-completion of Year 12 (%)
Intention to complete Year 12	Intends to complete Yr12	9
	Unsure about Yr12	69
	Intends not to complete Yr12	88
Post-school study intention	No post-school study intent	20
	Intends post-school study	15
School sector	Government	20
	Catholic	11
	Independent	5
Reading quartile	Lowest achievement	36
	Low-mid achievement	19
	Medium-high achievement	9
	Highest achievement	3
Maths quartile	Lowest achievement	34
	Low-mid achievement	18
	Medium-high achievement	11
	Highest achievement	3
Science quartile	Lowest achievement	35
	Low-mid achievement	17
	Medium-high achievement	10
	Highest achievement	3
Problem solving quartile	Lowest achievement	35
	Low-mid achievement	18
	Medium-high achievement	9
	Highest achievement	4
All		16

In the cross-tabulations presented in the above tables, individual characteristics and school-related variables associated with non-completion of school are likely to be inter-related. In order to separate the influences of these factors and to ascertain which have greater influences, multivariate modelling was undertaken. The results of that modelling are reported below.

Modelling influences on non-completion of school

The response variable of interest is whether young people complete Year 12 or not. The outcome variable of interest is dichotomous and an appropriate method for modelling such outcomes is the use of logistic regression. Importantly, because the sampling design for the study selected schools and then sampled students within schools, it is necessary to use multilevel modelling methods. The multilevel logistic regression was undertaken using HLM (Raudenbush *et al.*, 2005).

The explanatory variables in the model are a mixture of dichotomous (eg gender), categorical (eg parental education) and continuous variables. The categorical variables were dummy-variable coded to produce a set of dichotomous variables and the continuous variables were standardised to facilitate interpretation of model parameters. The model parameters reported in Table 5 are the odds ratios for non-completion rather than completion for the target group relative to the reference group. For example, in Model A the odds ratio for a child whose parent had a technical or trade qualification is shown as 2.03. This indicates that, net of other factors in the model, such a person is about twice as likely to be a school non-completer as is the child of a university-educated parent, the reference category chosen for parental educational.

The variables were entered into the model in blocks, beginning with individual and family background factors (Model A), followed by school-related individual acquired factors and school sector (Model B), the reading literacy and mathematics achievement individual variables and school sector and location variables (Model C) and a full range of individual and school level variables (Model D). These models were developed using school non-completion as the response variable. The successive inclusion of blocks of variables in the regression model is undertaken because theoretical models of school outcomes suggest that family background variables are fundamental, but they are mediated by individual factors and in turn these are mediated by school factors (Marjoribanks, 2002). As successive blocks of variables are added, the effects of the new variables on the parameter estimates of prior variables indicate the extent of mediation of the prior variables by the new ones.

In addition to the variables that were used in the cross-tabulations, three new student-level variables were included. These variables are now available from the PISA student questionnaires, but were not available in previous LSAY surveys, and therefore not used in previous LSAY reports on school non-completion. The new variables are attitude to school, student-teacher relations and sense of belonging (at school). At the school level, whether the school was co-educational or single-sex, a measure of average family SES in the school, whether admission criteria include zoning, teacher morale and student behaviour, which were derived from the PISA school questionnaire, were included.

The first two models, A and B, confirm the relationships that were observed from the cross-tabulations. Males are much more likely (71% more likely in Model A) than females to be school non-completers. Similarly, Indigenous young people are much more likely than non-Indigenous young people to be non-completers.

Parental education is also shown to be related significantly to school non-completion. Children of parents with other than a university education are significantly more likely to leave school without completing Year 12 than are those of parents who do have degrees. Children whose parents work in blue-collar occupations are more likely than those in white-collar occupations to be school non-completers and this effect is net of parental education. Another family-related variable is family structure. Children in nuclear families are much less likely to leave school early than are children in other family structures. The effect of this variable is strong and persistent, even when other variables that might explain the variation in school completion status are entered into the model.

Table 5 Two-level logistic regression for school non-completion: Odds ratios

Variable	Non-completion of School			
	Model A	Model B	Model C	Model D
<i>Individual background factors</i>				
<i>Gender (Ref Female)</i>				
Male	1.71	1.38	1.40	1.35
<i>Indigenous status (Ref non-Indigenous)</i>				
Indigenous	1.62	1.47	1.09	1.07
<i>Parent education (Ref University)</i>				
Less than complete secondary	2.31	1.94	1.66	1.58
Complete secondary	1.81	1.58	1.27	1.23
Technical or trade qualification	2.03	1.83	1.56	1.50
<i>Parent occupation (Ref White-collar, high-skill)</i>				
White-collar, low-skill	1.19	0.99	0.86	0.84
Blue-collar, high-skill	1.66	1.37	1.19	1.19
Blue-collar, low-skill	1.88	1.72	1.34	1.36
<i>Family structure (Ref Non-nuclear family)</i>				
Nuclear family	0.65	0.61	0.68	0.70
<i>Home language (Ref Non-English speaking)</i>				
English speaking	2.48	2.10	2.69	2.44
<i>Individual acquired factors</i>				
<i>Year 12 Intent (Ref No intent to complete)</i>				
Definite intention to complete Year 12		0.04	0.05	0.06
<i>Post-school intent (Ref No post-school intent)</i>				
Intends post-school study		0.75	0.78	0.80
<i>Individual achievement factors</i>				
Reading			0.73	0.78
Mathematical literacy			0.61	0.67
Scientific literacy				0.94
Problem solving				0.93
<i>Individual attitude variables</i>				
Attitude to school				0.86
Student–teacher relations				0.86
Sense of belonging				1.00
<i>School factors</i>				
<i>School sector (Ref Government)</i>				
Catholic		0.65	0.75	1.04
Independent		0.47	0.64	1.02
<i>Location (Ref Metropolitan)</i>				
Non-metropolitan			0.91	0.88
<i>Admission -zoned (Ref Not zoned)</i>				
Zoned				1.48
<i>School gender (Ref Single-sex)</i>				
Co-educational				1.61
School average SES			0.98	1.02
Teacher morale				1.18
Student behaviour				1.28
<i>Intercept</i>	0.04	1.36	0.75	0.40

Note: Parameters that are significant at the $p < 0.05$ level are shown in bold; those that are significant at the $p < 0.10$ level are shown in normal font, and those that are non-significant ($p > 0.10$) are shown in grey text.

Compared with students from non-English speaking home backgrounds, those from English-speaking home backgrounds are more than twice as likely to be school non-completers.

In Model B, the variable most likely to moderate the influences of others is intention to complete Year 12. Those students who, at age 15 years, indicated an intention to complete Year 12 are very unlikely to be non-completers. The inclusion of this variable was accompanied by a reduction in the parameters for the parental education and occupation categories, suggesting that high levels of parental education and high occupational status are associated with higher levels of educational aspiration and intention in children. It is likely also that the inclusion of the school sector variables – Catholic and independent – at the school level moderated the influence of parent education and occupation. Intention for post-school study had a similar, but weaker, effect. In this model, school

sector was introduced as an explanatory variable at the school level and both Catholic and independent schools were associated with significantly lower likelihoods of students enrolled in them being school non-completers compared with students in government schools.

In Model C, two achievement variables, for reading literacy and mathematical literacy, were introduced at the student level, and location and a school-average SES measure were introduced at the school level. The two achievement variables are highly significant and indicate that students whose reading literacy is one standard deviation above average are almost 30 per cent less likely than average achievers to be school non-completers.² On mathematics achievement, the effect is almost a 40 per cent reduction in the likelihood of being a non-completer. The introduction of these variables was accompanied by further moderation of several of the student-level parameters, most notably the influence of Indigenous status for which the odds ratio fell from 1.47 to 1.09 and became non-significant. The addition of the school level variables moderated the effects of school sector, although students from Catholic schools remained significantly less likely to be non-completers.

A broader range of variables was added at both the student and school levels in Model D. At the student level, favourable attitudes to school and favourable perceptions of student–teacher relations were both associated with a significantly reduced likelihood of school non-completion. At the school level, whether the school was coeducational or single-sex had a significant effect, with students from coeducational schools more likely to be non-completers. Note that when this variable was introduced, school sector — which in Model B had shown a significant influence — ceased to show an effect. It appears that the school gender variable in Model D has picked up the variance associated with school sector in Model B. It is possible that the more academically or socially selective schools are gender segregated. Problems with student behaviour and problems with staff morale (assessed by the school principal) were both associated with a greater probability of non-completion. School zoning (admission based in part on whether students live in a defined ‘catchment area’) was associated with a higher likelihood of non-completion. This factor is thought to pick up some of the variance associated with school sector, although the removal of this variable from the model did not result in the school sector parameters becoming significant.

The addition of attitude to school and perceptions of student–teacher relations at the student level and of zoning, coeducation and student behaviour at the school level, substantially moderated other variables in the model. School sector parameters became non-significant. This finding is at odds with previous research (Lamb, 1996; Le & Miller, 2002; Marks & Fleming, 1999; McMillan & Marks, 2003). Several reasons may be advanced for this non-significance. First, in the models developed in the present report, school sector has been included at the school rather than the student level. It is argued that previous research, in which school sector was modelled at the student level, may have over-estimated the significance of this variable. Second, a range of other factors, including student attitude, school gender and school climate measures (problems with student behaviour and teacher morale) have been included, and these appear to explain some of the variance previously attributed to school sector. Third, for some variables, there are small numbers of students in cells in the model, and this may lead to statistical non-significance.

It is possible that school sector influences operate through other variables. Student–teacher relations are the reported perceptions of individual students. While some variation between schools might be expected, considerable variation in perceptions between students occurs. In a separate analysis of this variable, 7 per cent of the variance was found to occur between schools and 93 per cent between students within schools. When student–teacher relations were modelled with the school sector variables, the parameters were significant. Thus the influence of school sector, although not directly significant on non-completion in Model D, appears to operate through other variables in the model, such as student–teacher relations.

² In the presence of reading and mathematics achievement, scientific literacy and problem solving did not add to the explanatory power of the models. (Note the non-significance of their parameters in Table 5.) Analyses of the relationships among these achievement variables and of their explanatory power are presented in Appendix 4.

In summary, being male, coming from an English-speaking home background, having parents with other than a university education and having parents who work in blue-collar occupations are all associated with an increased likelihood of school non-completion. Coming from a nuclear family, rather than a single-parent or blended family, is associated with a reduced likelihood of school non-completion. Family background factors are moderated by intention to complete Year 12 and achievement variables. Indeed, intention to complete Year 12 is the single most powerful influence on completion status. Having favourable attitudes to school and favourable perceptions of the quality of student–teacher relations at school are also significantly associated with retention at school. Few school-level factors exert strong direct influences on individual completion status. Being at a co-educational rather than a single-sex school, and being in a school with student behaviour or teacher morale problems are associated with an increased probability of non-completion. School sector influences appear to operate indirectly through other variables, for example through the quality of student–teacher relations.

School non-completion: Intentions, actions and reasons

Khoo and Ainley (2005) demonstrated that an intention to complete Year 12 mediated attitudes to school and the decision to complete, and that intention to complete was very strongly related to the ultimate decision to complete or not. When they were first surveyed in 2003, students were asked whether they intended to complete Year 12 or not, and if they intended to leave before Year 12, students were asked to indicate why they would leave. If they did leave school before Year 12, young people were asked why they had chosen to leave. In this section, the relationship between school non-completion intentions and actions is explored and the reasons for these intentions and actions are examined. The reasons given by those young people who changed their school completion plans are surveyed to see what might have prompted the change.

School leaving intentions and actions

Table 6 shows Year 12 intention, expressed at age 15 years, by school completion outcome. The ‘Cohort proportion’ column shows the percentage of the cohort in each Year 12 intention category. The ‘Non-completion outcome’ column shows the percentage of each intention category for those who ultimately left school without completing Year 12. When surveyed at age 15 years, 92 per cent of young people intended to complete Year 12 at school. Of those who intended to leave school before completing Year 12, almost 90 per cent of both females and males did indeed fulfil that intention. Of those who intended to complete Year 12, 8 per cent of females and 11 per cent of males left without realising that goal. Overwhelmingly, young people’s actions were consistent with their plans, with nine out of ten young people acting as they had intended. Among those few who were unsure about their educational goals, approximately two-thirds were non-completers.

Table 6 Year 12 intentions and non-completion outcome

Gender	Intention category	Cohort proportion ^a (%)	Non-completion outcome ^b (%)
Female	Intends not to complete Year 12	4	89
	Intends to complete Year 12	94	8
	Unsure about Year 12	1	60
	Total	100	13
Male	Intends not to complete Year 12	7	88
	Intends to complete Year 12	89	11
	Unsure about Year 12	3	73
	Total	100	19
All	Intends not to complete Year 12	6	88
	Intends to complete Year 12	92	9
	Unsure about Year 12	2	69
	Total	100	16

Notes: a. Column subtotals may not sum to 100 due to rounding;

b. This column shows the percentage of those whose intention translated into non-completion.

Reasons for an intention not to complete Year 12

Young people who indicated that they intended to leave school without completing Year 12 were prompted with a list of 12 possible reasons for deciding not to persist at school to Year 12. They were then asked to nominate the main reason for this decision. The main reason could have been one of the 12 offered or 'other'. On average, respondents endorsed five of the 12 reasons as influencing their plans to leave school before Year 12. The reasons and the proportions of all intending non-completers are shown in Table 7. Wanting to earn money and to get a job or an apprenticeship were common reasons contributing to young people's plans to leave school without completing Year 12. The set of reasons — including not needing Year 12 to pursue future study plans and the subjects or training desired not being available at school — were endorsed by about half of the young people who planned to leave without Year 12. Similarly, about half of the intending non-completers said they had a job or apprenticeship available. Not doing well at school was endorsed by one-third of respondents, while believing that parents or teachers would prefer the young person to leave and financial hardship accounted for relatively few responses.

Table 7 Possible reasons for intending not to complete Year 12

Possible reasons	Endorsed by (%)
You want to earn your own money	88
You want to get a job, apprenticeship or traineeship	82
Don't need Year 12 to go on to further study or training	56
You don't like school	55
You want to do study or training that isn't available at school	53
You have a job, apprenticeship or traineeship to go to	50
The school doesn't offer the subjects or courses you want	44
You're not doing very well at school	34
Having Year 12 won't help you get a job	30
Your teachers think you should leave	13
Your parents want you to leave	12
Financially, it is hard to stay at school	12

Note: Figures do not sum to 100 because respondents could nominate multiple reasons for leaving.

The dominant reasons influencing young people's intentions to leave school without completing Year 12 are shown in Table 8. Wanting to get a job or apprenticeship or having one arranged already were the main reasons for school non-completion for 60 per cent of those intending not to complete Year 12. Not liking school was the main reason for non-completion for 11 per cent of these young people.

Table 8 Main reason for intending not to complete Year 12

Main reason	Endorsed by (%)
Want to get a job, apprenticeship or traineeship	35
Job, apprenticeship or traineeship to go to	25
Don't like school	11
You want to earn your own money	8
Want to do study or training that isn't available at school	8
You don't need Year 12 to go on to further study or training	4
Not doing very well at school	3
The school doesn't offer the subjects or courses you want to do	3
Having Year 12 won't help you get a job	1
Other	1
Don't know	1
Financially, it is hard to stay at school	<1
Your teachers think you should leave	<1
Your parents want you to leave	<1
Total	100

Note: Figures shown in grey text are based on small absolute cell frequencies.

In order to test the basis of young people's beliefs in their ability to realise their plans, the activities of those who intended to leave school without completing Year 12 were compared by the main reason given for wanting to leave school. Because of the small numbers in many groups, only the top three reasons were considered, namely wanting a job or apprenticeship, having one available and not liking school. Of those who wanted to get a job or apprenticeship, 66 per cent were in full-time work and a further 11 per cent in part-time study or work. Among those who planned to leave school because a job or apprenticeship was available, 85 per cent were in full-time work and 5 per cent were in part-time work or study. Those whose main reason for wanting to leave without completing Year 12 was not liking school were ultimately less successful, with 59 per cent in full-time work and 26 per cent in part-time work or study.

Reasons for non-completion of Year 12

Students who did leave school without completing Year 12 were asked why they had left. They were prompted with a list of 12 possible reasons for leaving and asked to indicate if any of them influenced their decision to leave. They were then asked to indicate which reason was the main one for leaving school without completing Year 12. The proportions of young people endorsing these reasons are shown in Table 9 (an influence) and Table 10 (the main reason).

Respondents could nominate as many of the suggested reasons as they wished as influencing their decision to leave school. The average number of reasons endorsed was five. Wanting to earn money and wanting or having a job or apprenticeship were common influences on the decision to leave. Not liking school was also a common response. A set of reasons related to school programs (desired courses and programs not being available through school or school programs unrelated to desired training) were nominated by one third of non-completers, as was not doing well at school.

Table 9 Influences on the decision to leave school before Year 12

Possible reasons	Endorsed by (%)
You wanted to earn your own money	83
You wanted to get a job, apprenticeship or traineeship	75
You had a job, apprenticeship or traineeship to go to	59
You didn't like school	52
You didn't need Year 12 to go on to further study or training	45
You wanted to do study or training that wasn't available at school	44
School didn't offer the subjects or courses you wanted	35
You were not doing very well at school	32
Having Year 12 wouldn't help you get a job	31
Your teachers thought you should leave	16
Your parents wanted you to leave	11
Financially, it was hard to stay at school	11

Note: Figures do not sum to 100 because respondents could nominate multiple reasons for leaving.

When asked to nominate the main influence on their decision to leave school, having a job or apprenticeship was the most common. Not liking school and wanting to get a job or apprenticeship were also common reasons. The remaining reasons were endorsed by relatively few individuals.

Table 10 Main reason for leaving school without completing Year 12

Main reason	Endorsed by (%)
Had a job, apprenticeship or traineeship to go to	33
Didn't like school	17
Wanted to get a job, apprenticeship or traineeship	17
Wanted to do study or training that isn't available at sch	7
Not doing very well at school	5
Didn't need Year 12 to go on to further study or training	5
Parents wanted you to leave	5
Other	3
Wanted to earn your own money	2
School didn't offer the subjects or courses you wanted to	2
Teachers thought you should leave	2
Having Year 12 wouldn't help you get a job	1
Total	100

Note: Figures shown in grey text are based on small absolute cell frequencies.

In order to test how well-founded the reasons for leaving school without completing Year 12 were, the post-school activities that these young people were engaged in were examined. Among those who said they had a job or apprenticeship, 89 per cent were employed on a full-time basis. Of the young people whose main reason for leaving school was because they did not like it, 62 per cent were in full-time work. Of those who left because they wanted to get a job or apprenticeship, 66 per cent were employed on a full-time basis.

Reasons for changing school completion plans

Although most young people fulfilled their original plans for school completion, two sets of 'plan-changers' can be recognised, namely those who completed Year 12 having intended not to and those who did not complete when they had planned to complete. Only 6 per cent of the sample intended not to complete Year 12 and of them, 10 per cent (that is 0.6% of the sample) remained at

school to Year 12 completion.³ The numbers in this group are too small to enable firm conclusions to be drawn about the reasons that may be associated with their changed plans.

Of the 92 per cent who intended to complete Year 12, 11 per cent (10% of the sample) changed their plans and left school without completing Year 12. The reasons given by school non-completers for their decisions were compared by original school intention status. Of the two most common reasons given as the main reason for leaving school before completing Year 12 (see Table 10), the proportions of those who had intended not to complete Year 12 were identical to those who had planned to complete. On the third most common reason, 19 per cent of those who had intended to leave before Year 12 and 16 per cent of those who intended to complete Year 12 said they wanted to find a job or apprenticeship. On the remaining reasons, there were too few cases to enable reliable comparisons.

On the limited evidence available from a comparison of the reasons given for school leaving intentions and actions, no substantial differences are apparent between those who persisted with their original school leaving intentions and those who changed their plans.

Summary

School non-completion

Variables associated with an increased likelihood of school non-completion at the individual level are: being male; coming from an English-speaking home background; having parents with other than a university education; and having parents who work in blue-collar occupations. Coming from a nuclear family, rather than a single-parent or blended family, is associated with a reduced likelihood of school non-completion.

Having an intention to complete Year 12 is the single most powerful influence on completion status. Achieving well in both reading and mathematics is associated with a reduced likelihood of non-completion. Having favourable attitudes to school and favourable perceptions of the quality of student–teacher relations at school are also significantly associated with retention at school.

Some school-level factors do influence school retention. Being at a single-sex rather than a co-educational school is associated with school retention, although it is possible that this relationship may reflect school selectivity rather than gender directly. Being in a school with student behaviour or teacher morale problems is associated with an increased probability of non-completion. In contrast to previous studies, school sector appears to operate indirectly through other variables, such as the quality of student–teacher relations.

Reasons for non-completion

Intentions for school completion exert a strong influence on school completion with 90 per cent of young people fulfilling their school completion plans.

The reasons given for planning to leave school without completing Year 12 were similar to the reasons later given for leaving. The most common reasons, having or wanting a job or apprenticeship, were associated with later success with almost 90 per cent of people who left in order to accept a job or apprenticeship being in full-time employment. Those young people, whose main reason for leaving school was because they did not like it, were less successful than average in their post-school activities.

³ A further 2% were unsure about their school completion plans and they were not asked why they might leave school without completing Year 12.

3. THE CHANGING PROFILE OF SCHOOL NON-COMPLETERS

This chapter examines changes in the socio-demographic and academic profiles of school non-completers over a 25 year period, from the early 1980s to 2005. This extends earlier time series data based upon LSAY and associated surveys (Lamb, Dwyer & Wyn, 2000; Long, Carpenter & Hayden, 1999; McMillan & Marks, 2003).

Measuring trends in school non-completion

Data on socio-demographic characteristics

The socio-demographic characteristics of school non-completers from five cohorts of young people are examined. Results for the three oldest cohorts — drawn from the Australian Longitudinal Survey (ALS) and the Australian Youth Survey (AYS) — were first reported by Lamb, Dwyer, and Wyn (2000). Results for the fourth cohort are drawn from the LSAY 1995 Year 9 cohort and were first reported by McMillan and Marks (2003). Results for the youngest cohort are based upon the LSAY 2003 cohort of 15 year-olds, details of which were presented in Chapter 1. Results in this chapter are presented separately for males and females.

Each of the five cohorts represents a distinctive period in the history of Australian schooling and distinct periods in economic cycles. The oldest cohort, which was in Year 10 in 1980/81, entered secondary school at a time when the majority of young people did not stay on to complete Year 12. The 1988/89 Year 10 cohort was in junior secondary school at a time when staying on to Year 12 had become the norm. The 1992/93 Year 10 cohort was in junior secondary school at the time when Year 12 retention rates had peaked. The youngest two cohorts were in Year 9 or 15 years old during a period when retention rates had stabilised after declining slightly. Chapman and Gray (2002) noted that the major change in youth labour market participation between 1980 and 2000 was a substantial decline in full-time youth employment and a substantial increase in part-time employment. They argued that there has been a decrease in the number of young people seeking full-time work and an increase in those seeking part-time employment while continuing their education. The reduction in full-time employment opportunities for less-skilled youth appears to have contributed to the alternative of remaining at school while participating in the labour force part-time.

Data on academic characteristics

In order to analyse trends in the non-completion rates of young people who displayed differing academic characteristics in middle schooling, it was necessary to turn to a different data source for the 1980s and early 1990s. Data on reading and mathematical literacy from three cohorts of the Youth in Transition Survey (YIT) were used for this purpose; these results were first published by Long, Carpenter, and Hayden (1999) and were not disaggregated by gender. Data from the LSAY 1995 Year 9 cohort and the LSAY 2003 cohort of 15 year-olds complete the time series.

Some general comments

Some caution should be used when using these data to examine trends in school non-completion, as the method of sampling and the measures of some student characteristics changed between studies and cohorts. A broad description of the different samples is provided in Table 11. Key differences include whether the sample was age- or grade-based, age at first contact and the age of cohort members when school completion status was measured. In particular, school non-completion was measured by age 17 in the 2003 cohort, but by age 19 in the older LSAY and YIT cohorts. A number of the former group were still attending school at age 17 and, as discussed in Chapter 2, this may have biased the estimation of the school non-completion rate for the younger cohort.

Table 11 Description of data used to analyse trends

Data source	Cohort definition	Modal age at first contact	Age 17 (modal year for cohort)	Measurement of school non-completion	School non-completion rate
AYS/ALS (Lamb, et al., 2000)	Year 10 in 1980/81	16-25	1982/83	Details not provided	57%
	Year 10 in 1988/89		1990/91		41%
	Year 10 in 1992/93		1994/95		24%
YIT (Long, et al., 1999)	Born in 1965 and attending school at first contact	10/16 ^b	1982	Self-reports of having (not) completed Yr 12 by age 19 (1984) ^c	63%
	Born in 1970 and attending school at first contact	10/15 ^b	1987	Self-reports of having (not) completed Yr 12 by age 19 (1989) ^c	45%
	Born in 1975 and attending school at first contact	14/15 ^b	1992	Self-reports of having (not) completed Yr 12 by age 19 (1994) ^c	22%
LSAY (McMillan & Marks, 2003) ^a	Year 9 in 1995	14	1998	Left school before Sept of Yr 12. Measured by age 19 (2000)	21%
	Age 15 in 2003 and attending school at first contact	15	2005	Left school before Sept of Yr 12. Measured by age 17 (2005)	16%

Notes: ^a McMillan & Marks (2003) analysed the 1995 Year 9 cohort. The results pertaining to the 2003 cohort of 15 year-olds are based upon new analyses conducted for the current report.

^b The first age refers to the age at which reading and mathematical literacy tests were administered to the cohort. The second age refers to the age at which the annual survey program commenced.

^c Long, et al. (1999) reported school completion rates. These were converted to non-completion rates for the purposes of the current report.

Data on trends in non-completion are presented graphically throughout the chapter. The corresponding percentages and odds ratios are reported in Appendix 5 (Table 26 – Table 28). Seven characteristics are examined in turn: gender; parental occupation; parental education; school sector; region; parents' country of birth; and reading and mathematical literacy. Equity considerations, previous analysis including that reported in Chapter 2 and data availability determined the choice of characteristics to be analysed. It must be emphasised that the results are presented for each characteristic individually and do not control for the effects of the other characteristics.

Gender

Males were more likely than females to leave school before the completion of Year 12 throughout the 1980s, 1990s and early 2000s (Figure 1). In the early 1980s, 62 per cent of males and 51 per cent of females were school non-completers. Since then, the school non-completion rates of both males and females decreased markedly. By 2005, 19 per cent of males and 13 per cent of females were school non-completers. A gender gap in school non-completion of about 10 percentage points was evident throughout the 1980s and 1990s, although this gap had reduced to six percentage points by 2005. The relative difference in school non-completion rates between males and females was the same for the oldest and youngest cohorts (an odds ratio of 1.6).

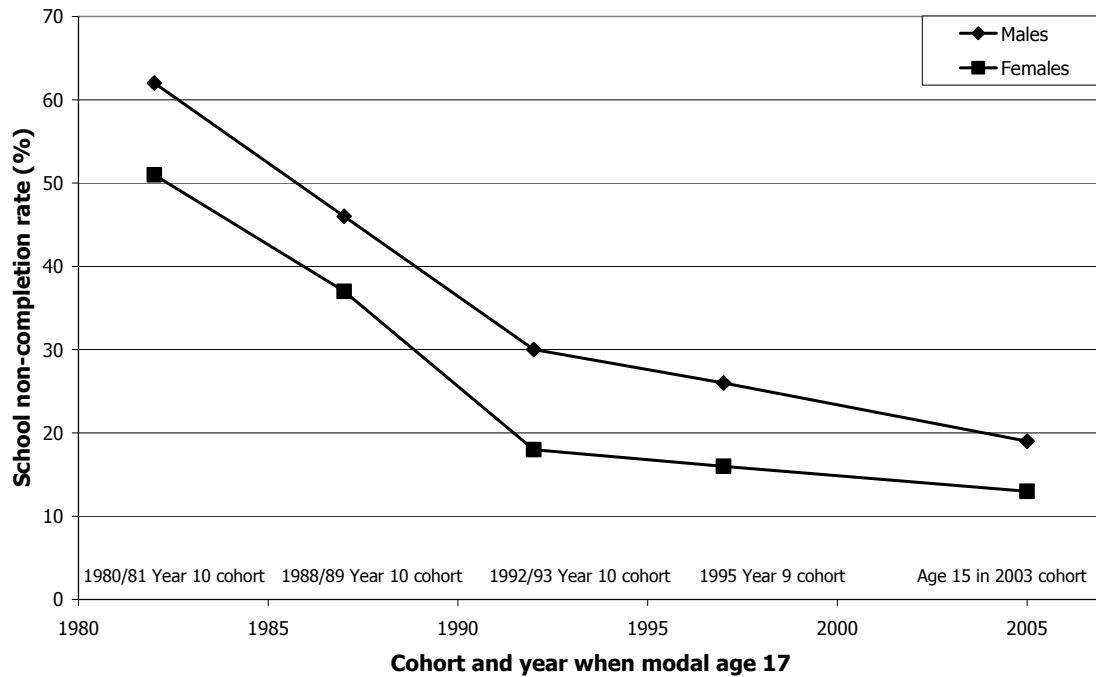


Figure 1 Gender and the non-completion of school, early 1980s to mid-2000s

Parental occupation

From the early 1980s to 2005, young people with parents in high-skill white-collar occupations were less likely than young people from other backgrounds to be school non-completers. In contrast, males with parents in low-skill blue-collar occupations experienced substantially higher rates of school non-completion than other groups, and females with parents in low-skill blue-collar occupations experienced higher rates of school non-completion throughout much of that time (Figure 2 and Figure 3). Refer to Appendix 2 for more information on the measurement of parental occupation.

Differences between young people from high-skill white-collar and low-skill blue-collar families decreased throughout the period. The male non-completion gap fell from 38 percentage points in the early 1980s to 22 percentage points in the mid-1990s, remained steady into the late 1990s, before falling again to 18 percentage points by 2005 (Figure 2). The female non-completion gap fell even more dramatically, from 45 percentage points for the 1980/81 Year 10 cohort to 8 percentage points for the 2003 cohort of 15 year-olds (Figure 3). A decline in the relative difference in the school non-completion rates of young people from high-skill white-collar and low-skill blue-collar backgrounds is also evident, especially among females for whom the odds ratio fell from 7.1 to 1.9 (Appendix 5, Table 27).

Changes in the school non-completion rates of young people whose parents were in low-skill white-collar occupations are also worth noting. While they declined across the three oldest cohorts, they started to rise again between the late 1990s and 2000s. By the early 2000s, the non-completion rates for young people from these less-skilled white-collar backgrounds were marginally higher than those from high-skill blue-collar backgrounds (males and females) and low-skill blue-collar backgrounds (females only).

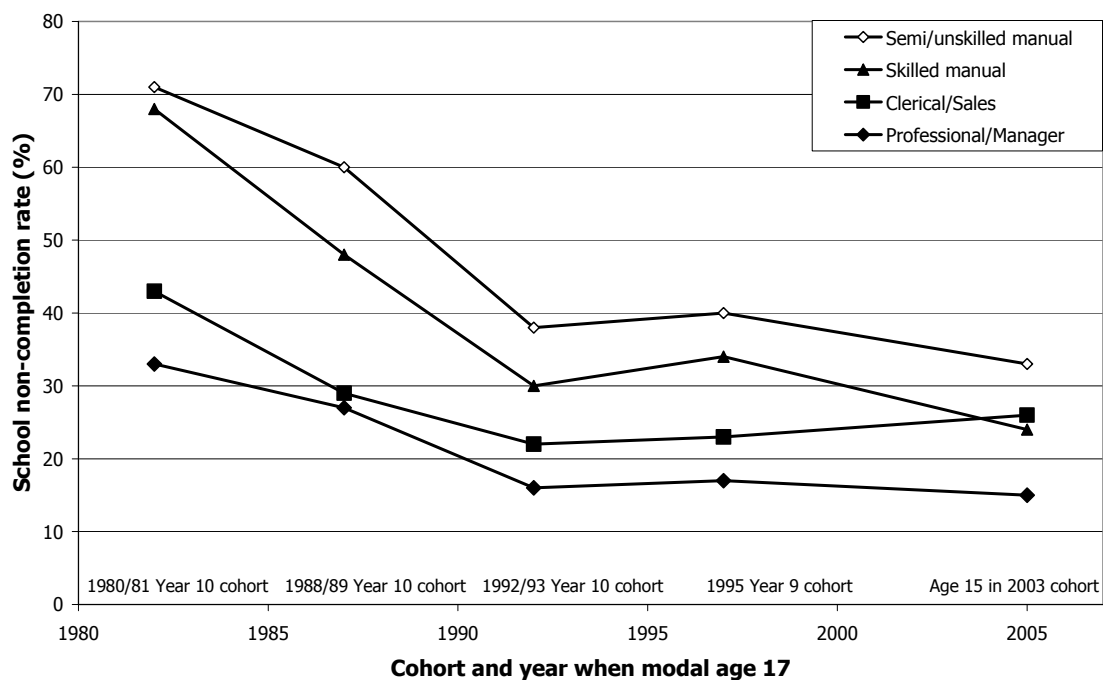


Figure 2 Parental occupation and the non-completion of school, early 1980s–mid-2000s, males

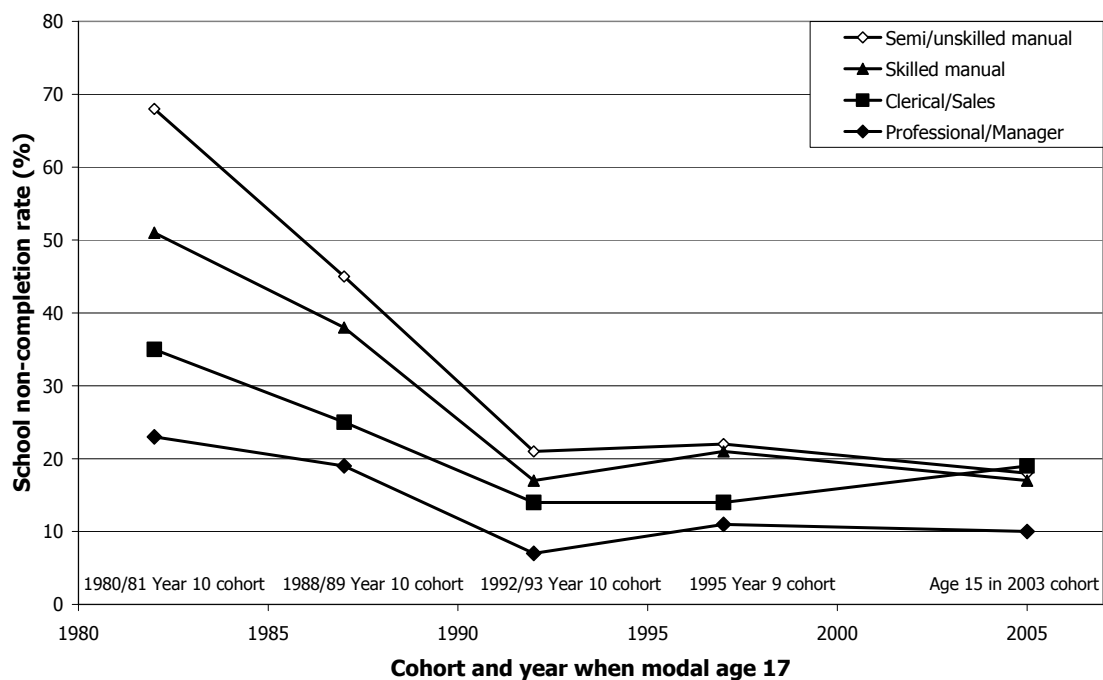


Figure 3 Parental occupation and the non-completion of school, early 1980s–mid-2000s, females

Overall, throughout the 1980s and 1990s, young people from white-collar families had lower non-completion rates than young people from blue-collar families. More specifically, high-skill white-collar families displayed the lowest non-completion rates, followed by young people whose parents were in low-skill white-collar occupations. Young people with parents in high-skill blue-collar occupations displayed higher non-completion rates, and those with parents in low-skill blue-collar occupations displayed the highest non-completion rates. However, by the early 2000s, the divide between blue-collar and white-collar families had blurred. The non-completion rates of males from low-skill white-collar and high-skill blue-collar families merged, while for females the major gap was now between upper white-collar families and all other families. This was in part due to rises, described above, in the non-completion rates of young people with parents in low-skill white-collar occupations.

Parental education

There was a clear relationship between parental education and young people's school non-completion rates in the early 1980s. Young people with university-educated parents were the least likely to leave school before completing Year 12, those whose parents had received other post-secondary education and training were somewhat more likely to become school non-completers, and those whose parents had not participated in post-secondary education and training had the highest school non-completion rates (Figure 4 and Figure 5).

Between the early 1980s and the late 1990s, this relationship weakened both in absolute and relative terms. For example, in the early 1980s, 67 per cent of males whose parents had not participated in post-secondary education and training left school before completing Year 12, compared with only 25 per cent of males with university-educated parents, a gap of 42 percentage points. By the late 1990s, this gap had declined to 14 percentage points. Similarly, the non-completion gap between females with university-educated parents and females with parents who had not received post-secondary education and training declined from 33 percentage points to 10 percentage points. For males, relative differences (measured by odds ratios) in non-completion rates between the two groups also decreased throughout the 1980s and 1990s, and a broadly similar pattern of relative differences was evident for females (Appendix 5, Table 27).

This trend was not continued into the early 2000s, however, with a marginal increase in the non-completion gap between young people with university-educated parents and those whose parents had not received post-secondary education and training. Relative differences in non-completion rates between the two groups (measured by odds ratios) also increased between the late 1990s and early 2000s (Appendix 5, Table 27).

By the end of the period under consideration, the major cleavage in school non-completion rates was between young people of university-educated parents and all other young people. A rise in the non-completion rates of young people whose parents had received other (non-university) post-secondary education, first noted in the 1995 Year 9 cohort, led to a convergence of the non-completion rates of young people whose parents had received other post-secondary education and those whose parents had no post-secondary education and training. Among females in the early 2000s, for example, the school non-completion rates for the two groups were 17 per cent and 19 per cent respectively, a gap of only two percentage points. By the late 1990s, the school non-completion rate of males whose parents had received other post-secondary education became marginally higher than that of males whose parents had received no post-secondary education and training; this relationship was maintained into the early 2000s.

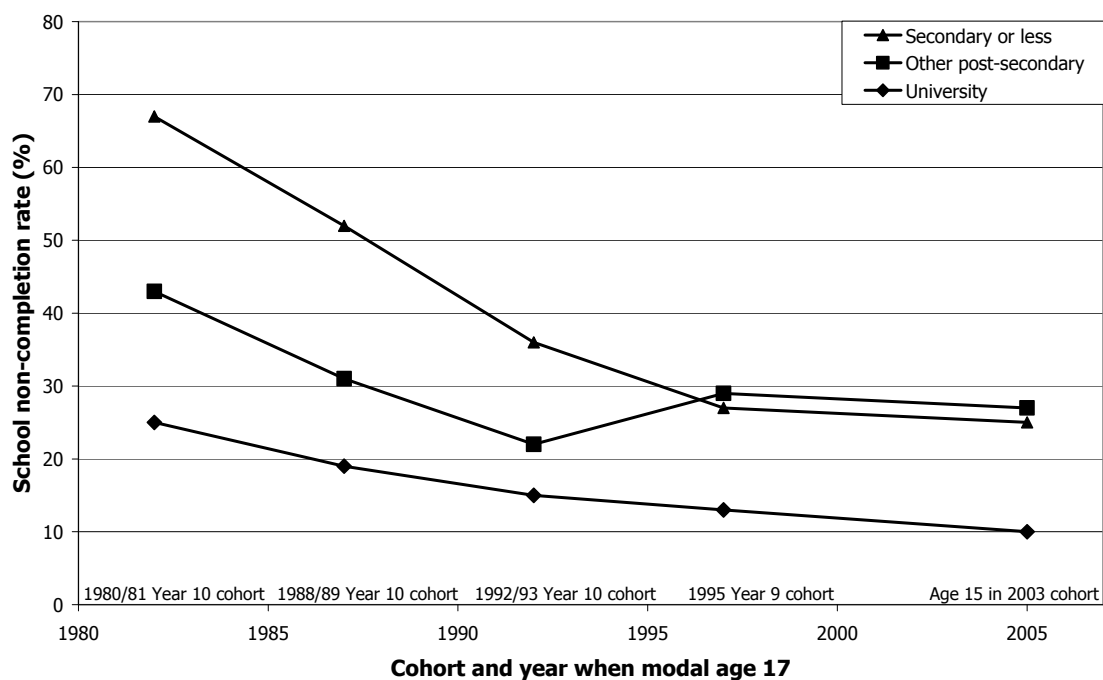


Figure 4 Parental education and the non-completion of school, early 1980s–mid-2000s, males

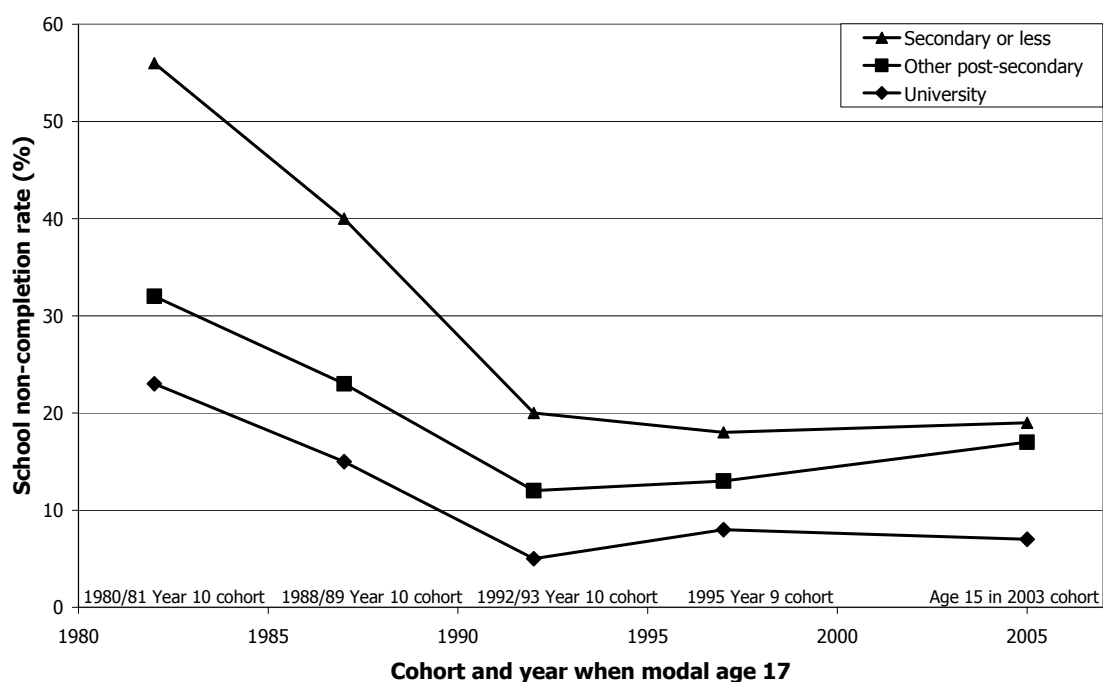


Figure 5 Parental education and the non-completion of school, early 1980s–mid-2000s, females

School sector

The school non-completion rates for the different school sectors are shown in Figure 6 and Figure 7. Throughout the period under consideration, school non-completion was substantially more common among those who attended government schools during their middle schooling than among those who attended Catholic or independent schools. Conversely, school non-completion was least common among those who attended independent schools, except for a brief period in the late 1990s when non-completion rates in the independent and Catholic sectors converged.

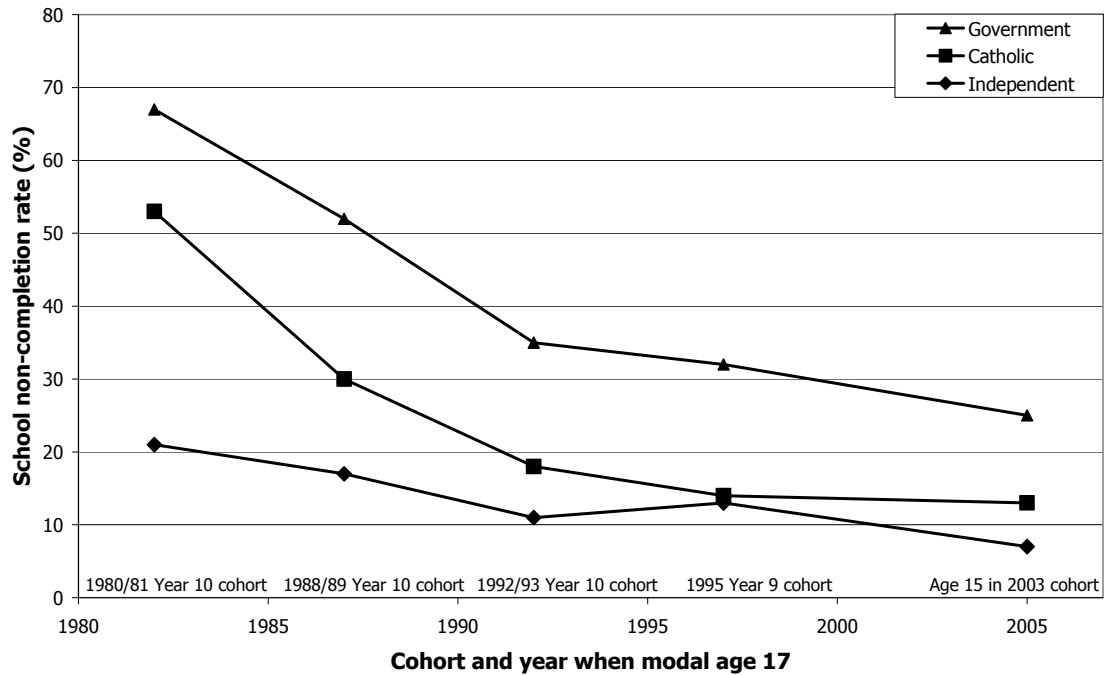


Figure 6 School sector and the non-completion of school, early 1980s–mid-2000s, males

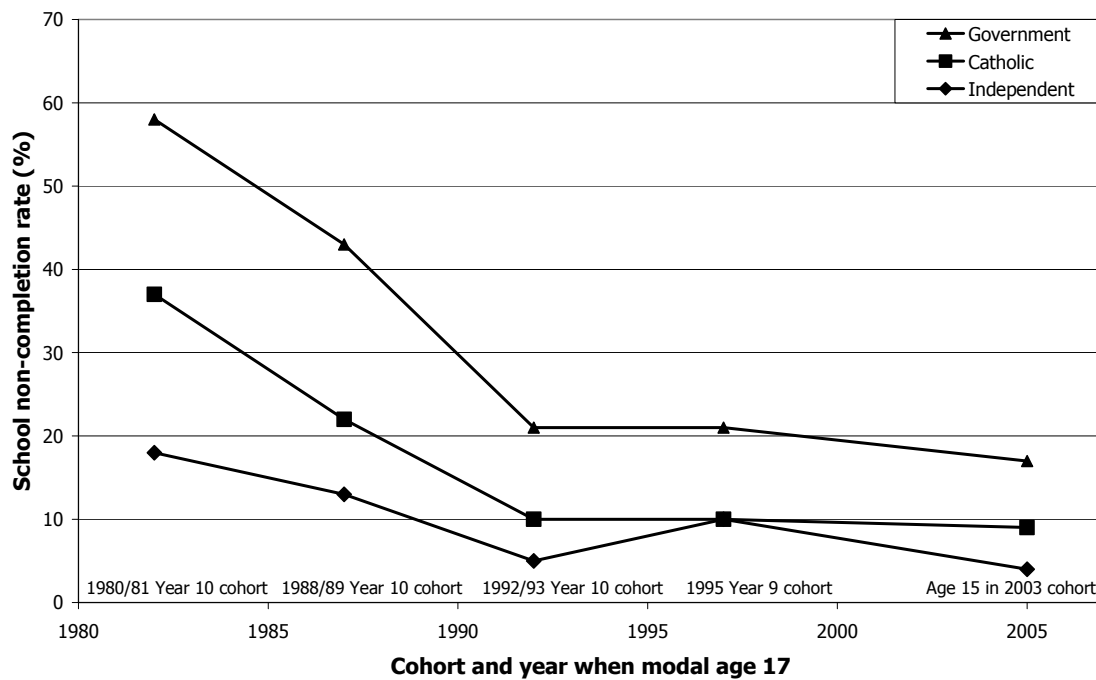


Figure 7 School sector and the non-completion of school, early 1980s–mid-2000s, females

School sector differences declined in the 1980s and 1990s, but this trend was not maintained into the early 2000s. In the early 1980s, 67 per cent of male Year 10 students attending government schools did not stay on to complete Year 12, compared with only 21 per cent of males in independent schools, a gap of 46 percentage points. This gap narrowed to 19 percentage points by the late 1990s and then remained relatively stable into the early 2000s. A similar pattern is evident for females, with the gap in non-completion rates falling from 40 percentage points in the early 1980s to 11 percentage points in the late 1990s before rising marginally to 13 percentage points in the early 2000s. Relative differences (measured by odds ratios) between the independent sector and both the Catholic and government sectors also fell throughout the 1980s and 1990s, but rose between the late 1990s and early 2000s (Appendix 5, Table 27).

Geographic location

Students from non-metropolitan areas were less likely to complete senior secondary school than their metropolitan counterparts. While non-completion rates for both groups fell between the early 1980s and the early 2000s, differences were still evident in 2005 (Figure 8 and Figure 9).

For males, the absolute difference in non-completion rates rose between the early 1980s and mid 1990s, from 9 percentage points to 15 percentage points, and the relative difference between the groups also rose. In the late 1990s, the difference in non-completion rates among males from metropolitan and non-metropolitan areas decreased slightly to 13 percentage points, and then remained steady into the early 2000s. However, relative differences (measured by odds ratios) between the two groups continued to rise (from 1.5 to 2.1) (Appendix 5, Table 27).

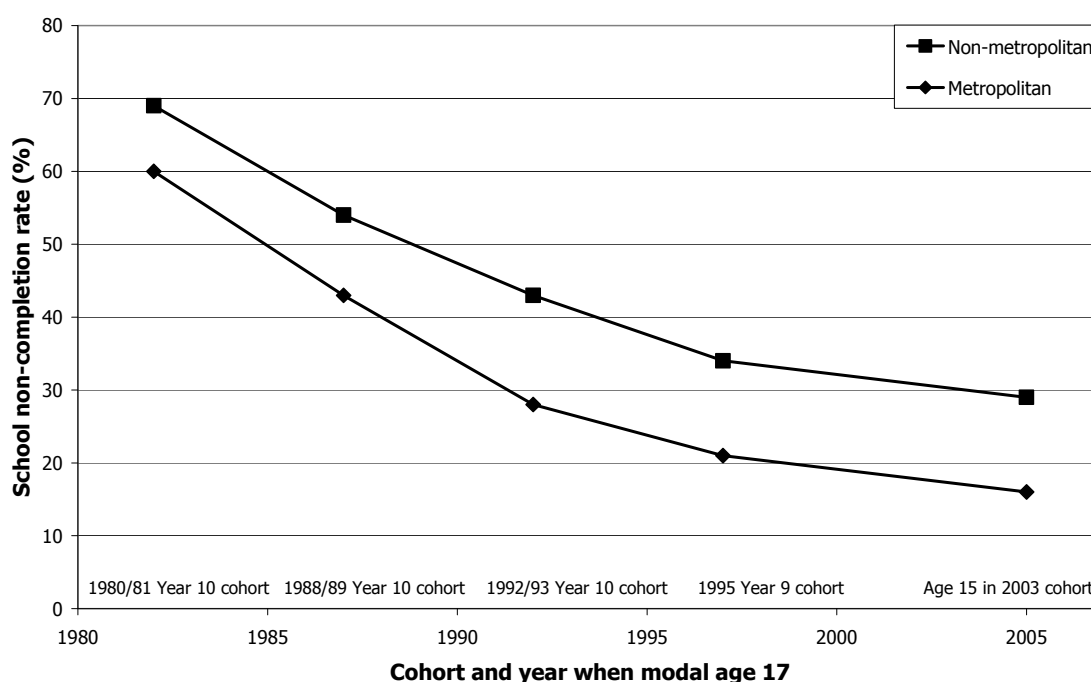


Figure 8 Geographic location and the non-completion of school, early 1980s–mid-2000s, males

For females, a somewhat different pattern was evident. Differences in school non-completion between females from metropolitan and non-metropolitan areas rose from 9 percentage points in the early 1980s to 16 percentage points in the early 1990s before declining steadily to five percentage points in 2005. Relative differences (measured by odds ratios) rose in the early 1990s, remained steady in the 1990s, and then fell in the early 2000s to around the level of the early 1980s (Appendix 5, Table 27).

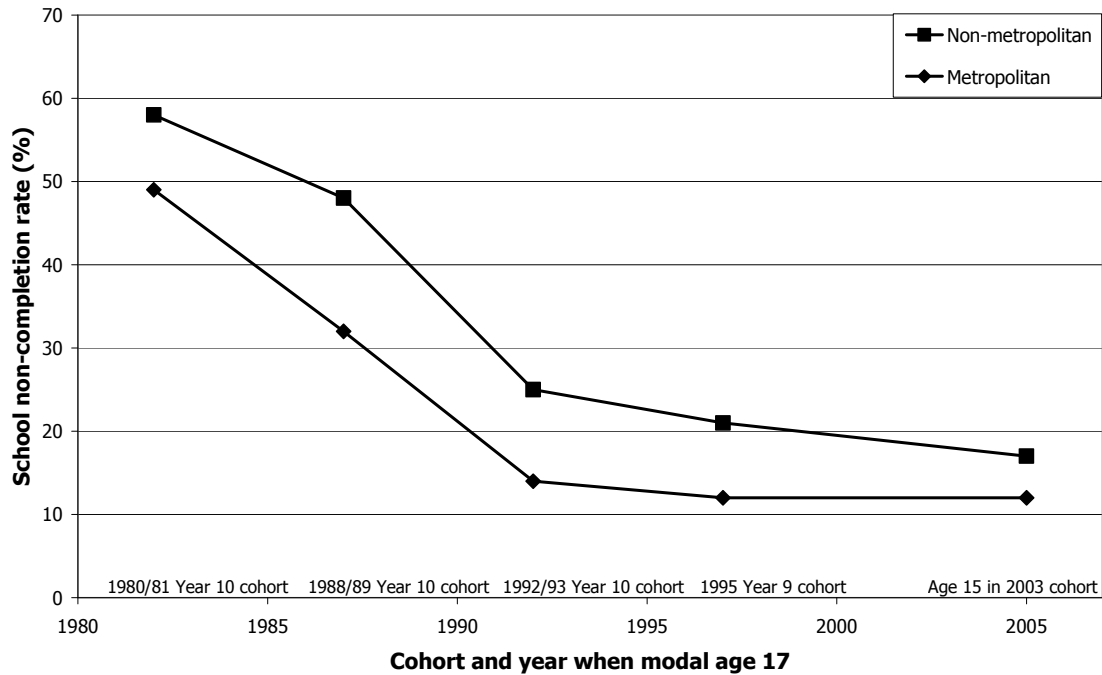


Figure 9 Geographic location and the non-completion of school, early 1980s–mid-2000s, females

Parents' country of birth

Throughout the period under consideration, the school non-completion rates of young people whose parents were born in non-English-speaking countries were considerably lower than those of young people whose parents were born in Australia and other English-speaking countries (Figure 10 and Figure 11).

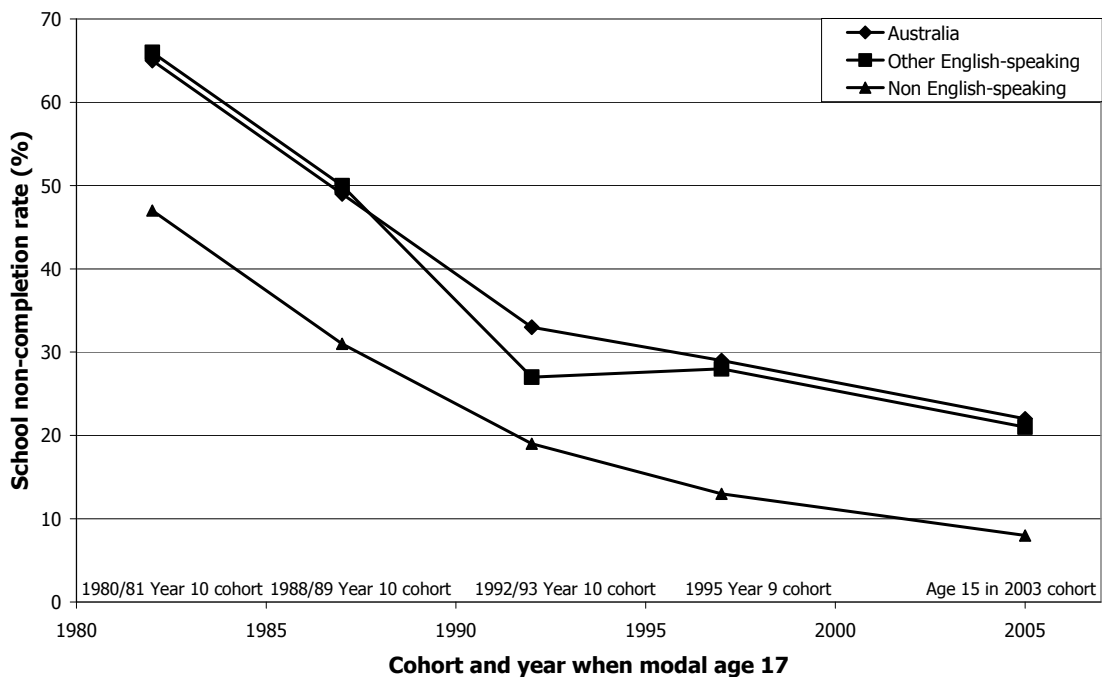


Figure 10 Parents' country of birth and the non-completion of school, early 1980s–mid-2000s, males

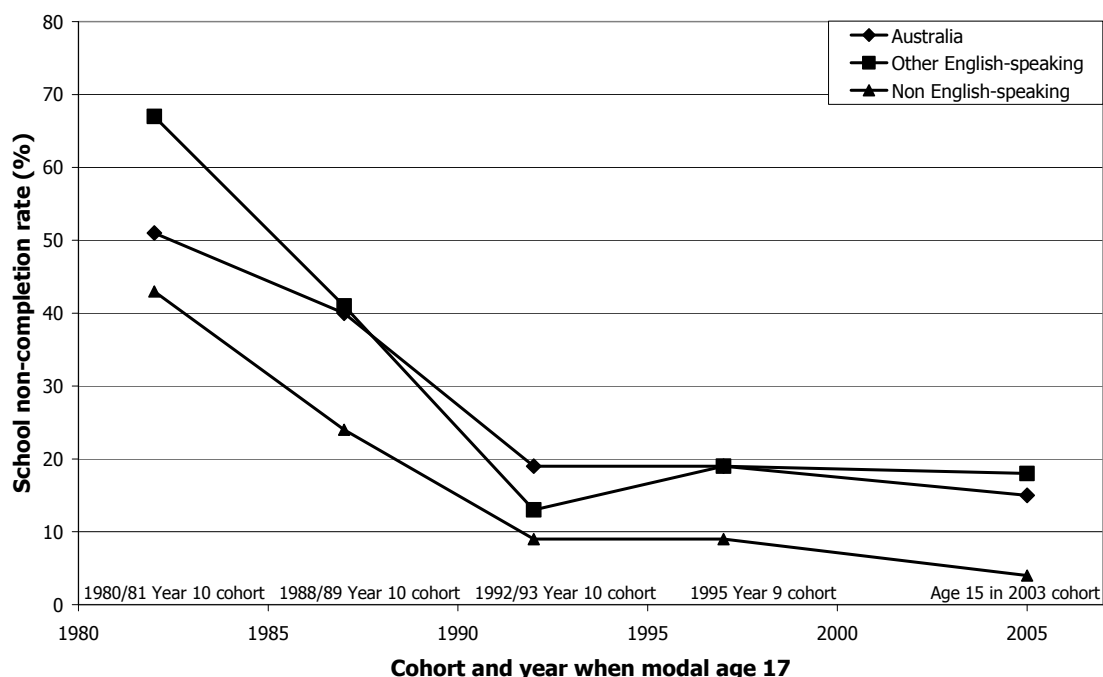


Figure 11 Parents' country of birth and the non-completion of school, early 1980s–mid-2000s, females

Absolute differences between these groups fluctuated over time, especially among females. For example, there was an eight percentage point difference in the school non-completion rates of females with Australian-born parents and females with non-English-speaking backgrounds in the early 1980s. This rose to a 16 percentage point difference by the early 1990s, fell to a 10 percentage point difference in the mid-1990s and remained relatively stable after that time. Fluctuations were also evident in the gap between females with Australian-born parents and females with parents from other English-speaking countries. In the early 1980s and the early 2000s, females with Australian-born parents were less likely than those with parents from other English-speaking countries to leave before the completion of Year 12, but in the mid-1990s they were more likely to become non-completers. For males, the gap between these two groups was negligible for most of the period (one percentage point).

Relative differences increased over time between young people from non-English-speaking backgrounds and those with Australian-born parents. For males, the odds ratios rose from 2.1 for the three oldest cohorts to 3.0 for the youngest cohort. For females, the odds ratios rose from 1.4 for the oldest cohort to 3.9 for the youngest cohort. Similarly, the relative difference in non-completion between young people from non-English speaking backgrounds and those from other English-speaking backgrounds was highest in the youngest cohort which left school in the early 2000s (Appendix 5, Table 27).

Reading and mathematical literacy

The reading and mathematical literacy profiles of young people discussed in this section are not disaggregated by gender due to the nature of previously published results relating to the older cohorts.

There was a clear relationship between reading and mathematics literacy and the non-completion of school throughout the 1980s, 1990s and early 2000s; the lowest-performing quartile of young people experienced the highest non-completion rates, followed by the next and subsequent quartiles, while the quartile with the highest literacy test scores was the least likely to leave school before the completion of Year 12 (Figure 12).

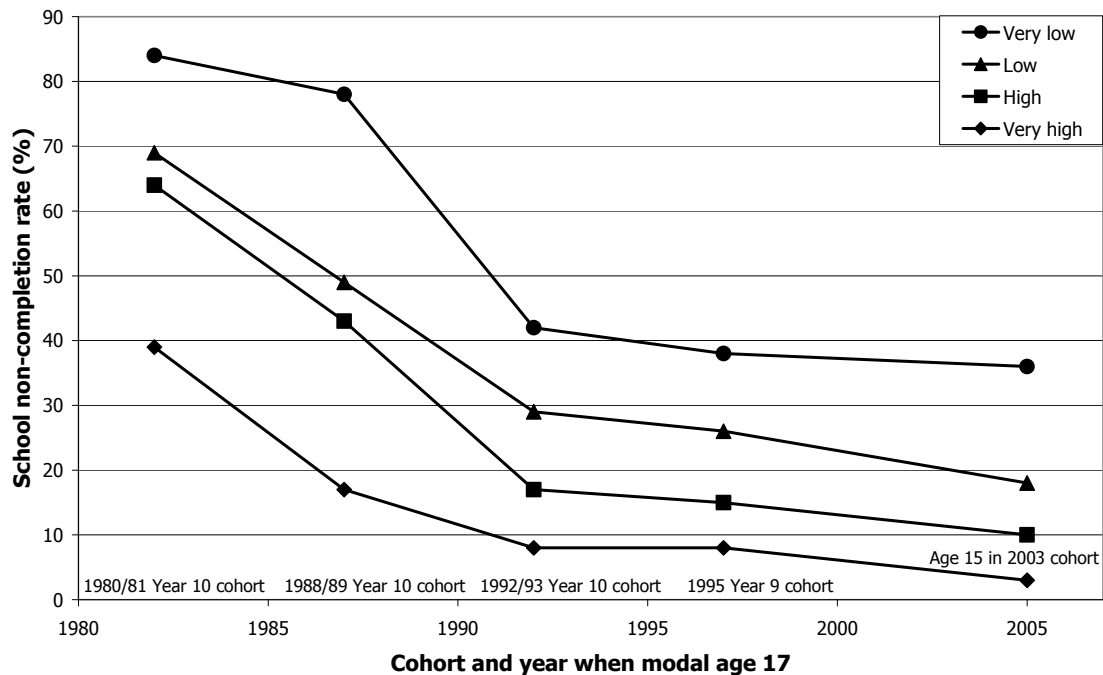


Figure 12 Reading and mathematical literacy and the non-completion of school, early 1980s–mid 2000s

In the oldest cohort — which entered secondary school in the late 1970s — 84 per cent of students in the lowest quartile of reading and mathematical literacy became non-completers, compared with only 39 per cent of those in the highest achievement quartile, a gap of 45 percentage points. In the next cohort — which entered secondary school five years later — this gap increased to 61 percentage points, due to the relatively rapid decrease in the school non-completion rates of the very high achievers (from 39% to 17%) and the considerably smaller drop in the school non-completion rates of the very low achievers (from 84% to 78%). However, five years later, in the early 1990s, the gap in non-completion rates between the very high and very low achievers had narrowed considerably, to 34 percentage points. There was a further decline to 30 percentage points by the late 1990s, but the gap widened again by the early 2000s to around the level experienced in the early 1990s. By the early 2000s, virtually no young person who displayed a very high level of reading and mathematical literacy in middle schooling left before the completion of Year 12, but a large proportion of young people in the lowest achievement quartile became school non-completers (3% and 36%, respectively).

Summary

This chapter examined the socio-demographic and academic profiles of young people who left school between the early 1980s and 2005. The following socio-demographic groups consistently displayed low school non-completion rates: females; young people with parents in high-skill white-collar occupations; young people with university-educated parents; those who attended independent schools; those from metropolitan areas; and those with parents from non-English-speaking backgrounds.

The period under consideration witnessed a reduction in socioeconomic inequalities as indicated by the changing nature of the parental occupation, parental education and school sector profiles of school non-completers. However, some of these socioeconomic trends halted or even reversed between the late 1990s and 2005.

The academic profile of young people also impacted upon their school leaving patterns throughout the period under consideration. By the early 2000s, virtually no young person who displayed a very high level of reading and mathematical literacy in middle schooling left before the completion of Year 12, but a large proportion of young people in the lowest achievement quartile continued to do so.

4. THE POST-SCHOOL PLANS AND INITIAL DESTINATIONS OF SCHOOL NON-COMPLETERS

The first half of this chapter examines the post-school education, training and labour market plans of young people — school completers and non-completers — and assesses whether they are on track to realise their occupational goals. The second half of the chapter provides a broad overview of the early post-school education, training and labour market activities of school non-completers. The focus is on main activities at age 17, a time when many of their contemporaries were nearing the completion of senior secondary school.

School non-completion and post-school plans

Young people were asked, at age 15, to indicate what type of job they expected to have at age 30 and to indicate what level of education and what learning and work activities they planned upon leaving school. It is to be hoped that young people make career choices that are consistent with the opportunities in the labour market, and that their post-school education and training plans are compatible with the requirements of the jobs they hope to enter.

The occupations nominated by young people were coded using the ISCO-88 standard. For the analyses presented in this section, nine major occupational groups were recognised.⁴ They are shown in Table 12 with the percentages of all young people (both school completers and non-completers) aspiring to jobs in those major groups. Also shown in the table are the percentages of young people who expected to have a job in each of the occupational categories and who did not complete Year 12 at school (column 3) and had not embarked upon an alternative vocational program.

Table 12 Young people's choices of ISCO major occupational types by non-completion status

Major occupational group (ISCO-88)	Percentage of young people choosing the group	School non-completion rate as a percentage of occupational category	Alternative non-completion rate as a percentage of occupational category
Legislator, manager, senior administrator	6	15	7
Professional	46	8	4
Associate professional, Technician	20	12	6
Clerical	1	28	12
Service, Sales	10	32	13
Skilled agriculture /fisheries	1	34	11
Crafts and Trades	8	48	15
Plant/machine operators	<1	50	20
Elementary occupations	7	21	11
Total (as % of all young people)	100	16	7

Note: Figures shown in grey are based on low (<30) cell frequencies.

A notable feature of Table 12 is that 46 per cent of the young people surveyed indicated they expected to be in a professional occupation by age 30. However, ABS (2007, p. 48) data show that approximately 20 per cent of the current labour force is employed in these occupations. There are similar mismatches in associate professional occupations. Conversely, 18 per cent of these young people expect to have clerical, sales or elementary occupations, whereas these categories make up about 45 per cent of the current labour force. Clearly, some young people's occupational aspirations are ambitious.

⁴ In Australia, the tenth major group of ISCO-88, jobs in the armed forces, are located within other major groups according to the level of each particular military role.

Are young people on track to realise their occupational goals?

School completion or its vocational equivalent

The final two columns in Table 12 provide indications of the extent to which young people are on a trajectory that will lead towards the achievement of their occupational goals. For the professionally-oriented group, since they will require a university degree, school completion is the relevant indicator. Eight per cent of this group have left school without completing Year 12 and have deviated from their goal. For the associate professional or technician group, completion of school or a vocational equivalent is the relevant indicator. For this group, 6 per cent appear to have deviated from an educational path that would lead to their desired occupation. Among those whose employment goals include clerical, sales, service, skilled crafts and trades, 14 per cent have ceased to be involved in education or training that will enable them to achieve their goals. Of the final two occupational groups, 12 per cent have ceased involvement in education or training and 7 per cent are not fully engaged in a combination of education, training or work.

The above analysis suggests that most young people are on initial trajectories that are consistent with their desired occupations at age 30. There is, however, a group of between 6 and 14 per cent of the cohort who have deviated from a path that will enable them to realise their occupational goals.

Planned post-school pathways to work

Because of the small proportions of young people nominating occupations in some groups, notably clerical, agriculture and fisheries, and plant or machine operators, some of these groups were combined for subsequent analyses. For each combined ISCO group, the proportions of young people nominating particular post-school activities are shown in Table 13. The match between ISCO major groups and post-school education and training activities is expected to be approximate because some major groups are quite diverse. The focus of this section is on the occupational category to which young people aspire, so both school completers and non-completers have been included in the analysis.⁵

The ISCO standard recognises four broad levels of training, but these levels do not correspond closely to the structure of post-school training in Australia. For this reason, planned post-school activities which include attending university, getting an apprenticeship or traineeship, doing a TAFE or other training course, and seeking work (without further education or training) have been used.

Joining the defence forces, travelling and other activities account for only 3 per cent of planned activities, but 7 per cent of young people do not know what they will do in order to realise their vocational goals. The proportion of those young people intending to seek plant or machine operator or unskilled work who do not know what further learning they will do is rather high at 17 per cent. That almost half of this vocational group plan to undertake a higher education course is surprising as this appears to represent an over-investment in human capital formation. This major group in the classification includes those people who expect to be engaged in home duties at age 30, and many of these may plan to gain advanced educational qualifications, work for a period and, by age 30, have begun to form their own families.

⁵ The ISCO standard does not recognise any particular level of training associated with the legislator, senior official or manager major occupational group, so no comment is offered about the appropriateness of the post-school activities planned by this group.

Table 13 Planned post-school education and training activity by ISCO major occupational group of desired job at age 30

	Higher education	Apprenticeship	Traineeship	Other VET	Look for work	Defence forces	Travel	Don't know/Other
Legislator, Senior official, Manager	55	7	1	18	8	1	2	7
Professional	79	3	0	7	4	0	2	5
Associate professional, Technician	56	6	2	17	8	2	2	8
Clerical, Service, Sales	21	18	5	30	13	5	1	7
Skilled craft, Trade	11	52	4	12	13	1	1	5
Plant operator, Elementary	48	10	1	10	12	0	2	17
<i>Total</i>	<i>57</i>	<i>11</i>	<i>2</i>	<i>13</i>	<i>8</i>	<i>1</i>	<i>2</i>	<i>7</i>

Notes: Row percentages may not sum to 100 due to rounding. Figures shown in grey are based on low (<30) cell frequencies.

The overall educational plans reflect some deviations from the pattern that can be expected for the cohort. It is likely, based on the post-school activities of recent cohorts, that fewer than half the cohort will enter higher education. The proportion planning an apprenticeship corresponds closely with expectations, but it is likely that many more than the proportions shown will do traineeships and other VET programs. About one in ten cohort members will likely do a traineeship and about one in five will likely undertake a non-apprenticeship VET course.

Four out of five young people who hope to have professional jobs by age 30 plan to do a university course. Since a university course is a minimum requirement for most professional occupations, it appears that 20 per cent of the cohort either do not know what the educational requirements are for their desired occupations or are embarking on trajectories that are unlikely to lead to the work they want.

Of the young people who plan to have technical or associate professional occupations, a rather high proportion (56%) is planning a university education, and perhaps too few are planning forms of apprenticeship or non-apprenticeship vocational and technical education. Approximately 20 per cent of this group of young people either do not know what education and training path to follow or have plans that are unlikely to lead them to their occupational goals.

Young people who plan to work in the clerical, sales, services, and skilled trades areas almost certainly need at least an AQF certificate level 3 qualification. Although just over half of those who plan to pursue a trade career intend to undertake an apprenticeship, this figure should be substantially higher than the 56 per cent shown for Australian Apprenticeships (apprenticeships and traineeships). As was seen for the professional and associate professional groups, approximately 20 per cent of the group appears to be planning a post-school education and training program that is unlikely to enable them to realise their vocational goals.

The situation for plant and machine operators is less clear. A high proportion are planning a university education but, as noted above, this may be inflated by young people planning family formation activities at age 30 following other forms of work.

It does appear that approximately 20 per cent of cohort members are either unsure about what is required to realise their goals (7%) or plan to undertake post-school activities that are not consistent with their occupational intentions (13%).

Initial destinations of school non-completers: Education and training

Participation

Attention now turns to the early post-school education and training activities of school non-completers. For the purposes of this report, participation refers to the completion of a qualification by age 17 or working towards a qualification at age 17. Where respondents had completed more than one qualification, or completed one qualification and were working towards another, participation refers to the first completed qualification.

School non-completers' level of participation in post-school vocational education and training (VET) is reported in Table 14. Over half of school non-completers engaged in some form of VET in the early post-school years, suggesting that disengagement from school does not necessarily equate with disengagement from learning. Gender differences are evident. While males were more likely than females to leave school before the completion of Year 12 (Chapter 2), male non-completers were more likely than female non-completers to be VET participants in the early post-school years. Gender differences are also apparent in the nature of VET participation. Male non-completers were four times as likely as female non-completers to participate in apprenticeships, while females were more likely than males to participate in traineeships or other VET courses.

Table 14 School non-completers' participation in post-school vocational education and training, by gender to 2005

Type of VET	Males (%)	Females (%)	Persons (%)
Apprenticeship	41	10	28
Traineeship	7	13	10
Non-apprenticeship VET	12	22	16
Not in VET	40	55	46
Total %	100	100	100
Total n	794	536	1330

Notes: Participation comprises qualifications completed since leaving school and participation at the time of the 2005 interview. Column percentages may not add exactly to 100 due to rounding.

Course level

The course levels of school non-completers who participated in VET are reported in Table 15. The vast majority undertook certificate level courses. Males were more likely than females not to know their certificate level or to be working towards a lower-level certificate, while females were more likely than males to be participating in a course leading towards a certificate III/IV or diploma, advanced diploma or associate degree.

Table 15 Course level of school non-completers who participated in VET, by gender to 2005

Course level	Males (%)	Females (%)	Persons (%)
Certificate I & II	50	45	48
Certificate III & IV	34	42	37
Certificate (level unknown)	15	5	12
Diploma, advanced diploma or associate degree	2	7	4
Total %	100	100	100
Total n	475	242	717

Notes: Course level refers to courses completed since leaving school and courses being undertaken at the time of the 2005 interview. Figures shown in grey are based on low (<30) cell frequencies. Column percentages may not add exactly to 100 due to rounding.

Field of education

The fields of education of the VET participants — classified by the Australian Standard Classification of Education (ASCED) broad fields (ABS, 2001) — are reported in Table 16. Again, marked gender differences are evident. Male non-completers were concentrated in engineering and related technologies, and architecture and building. Female non-completers were concentrated in management and commerce, and food, hospitality and personal services. Participation in each of the remaining eight ASCED broad fields of education could not be reported separately due to the sample size.

Table 16 Field of education of school non-completers who participated in VET, by gender to 2005

Field of education	Males (%)	Females (%)	Persons (%)
Engineering & related technologies	42	1	29
Architecture & building	24	1	16
Management & commerce	9	32	16
Food, hospitality & personal services	11	47	23
Other	14	19	16
Total %	100	100	100
Total n	475	242	717

Notes: Field of education refers to courses completed since leaving school and courses being undertaken at the time of the 2005 interview. Figures shown in grey are based on low (<30) cell frequencies. Column percentages may not add exactly to 100 due to rounding.

Achievement at school and post-school education and training

The relationship between school non-completers' participation in vocational education and training and their earlier achievement in four literacy domains is shown in Figure 13. There was a clear, linear relationship between mathematical literacy while at school and subsequent VET participation. Only half of those in the lowest quartile of mathematical literacy were VET participants, rising to over 60 per cent of those in the highest quartile. The relationship between VET participation and achievement in science literacy and problem solving was less clear, but in both of these domains those in the lowest achievement quartile displayed the lowest VET participation rates. Achievement in reading literacy was not significantly related to subsequent VET participation.

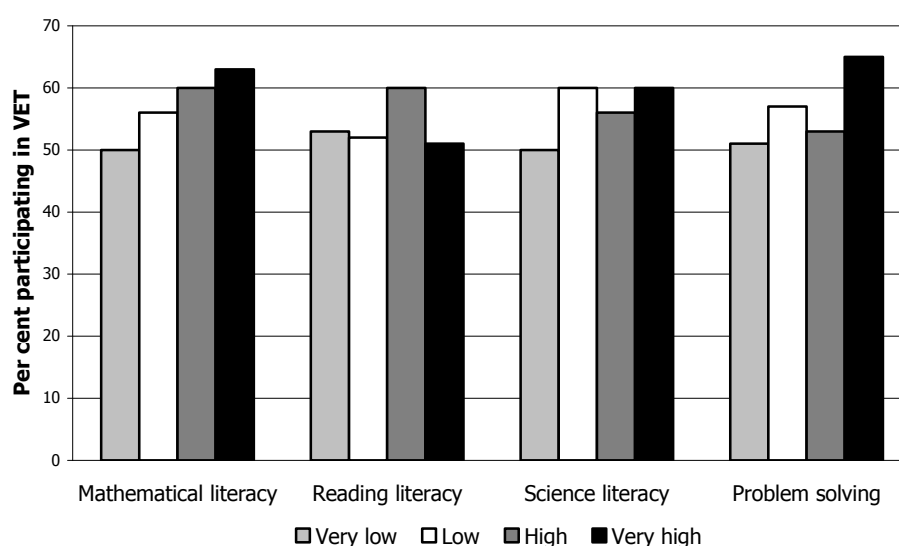


Figure 13 VET participation to 2005 by achievement level and domain among school non-completers

There was a slight tendency for those with lower achievement levels compared with those with higher levels to be in low-level (certificate I/II) courses and, conversely, for those with higher achievement levels compared with those with lower levels to be in higher-level (certificate III/IV) courses. While this relationship was evident across all four achievement domains, it was not statistically significant (Appendix 5, Table 30).

Reading literacy, however, was clearly related to the field of education that VET participants entered (Figure 14). Among those fields most commonly entered by males — engineering and related technologies, and architecture and building — a negative relationship was evident. For example, over 30 per cent of those with very low reading literacy levels entered engineering and related technologies compared with less than 20 per cent of those with very high literacy levels. In contrast, young people with lower reading literacy levels were less likely than those with higher literacy levels to enter the management and commerce field; 13 per cent of VET participants in the lowest literacy quartile compared with 37 per cent of VET participants in the highest literacy quartile entered this field.

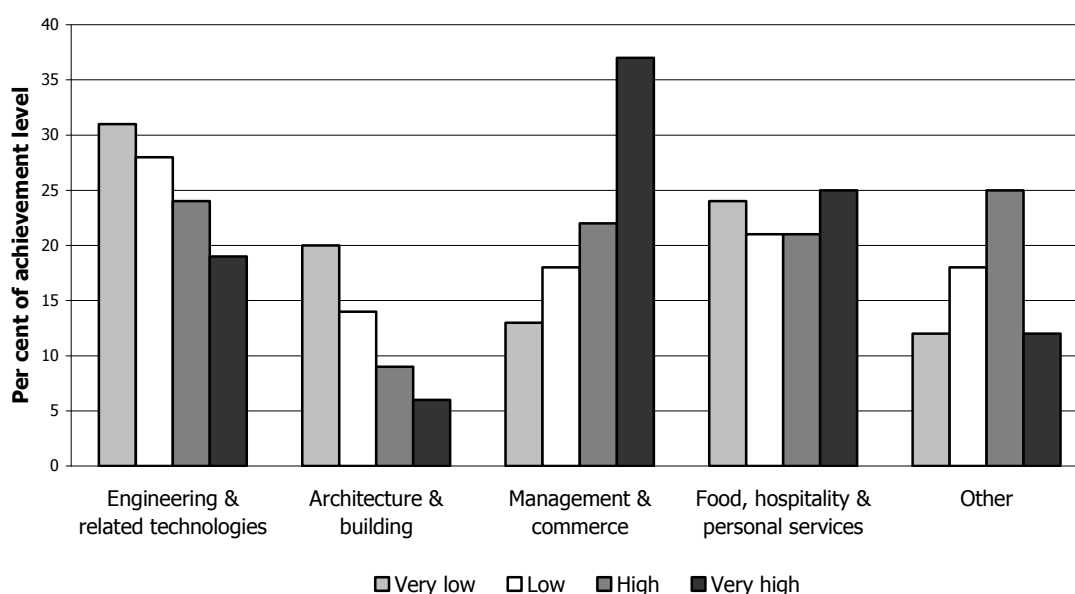


Figure 14 Field of education by reading literacy quartiles among school non-completers participating in VET to 2005

Science literacy was also related to the field of education that VET participants entered (Figure 15). Young people with lower science literacy levels at age 15 were more likely than those with higher literacy levels to enter fields such as architecture and building, and food, hospitality and personal services, but less likely to enter the management and commerce field in the post-school years.

Mathematical literacy and problem solving were not significantly related to field of education (see Appendix 5, Table 31).

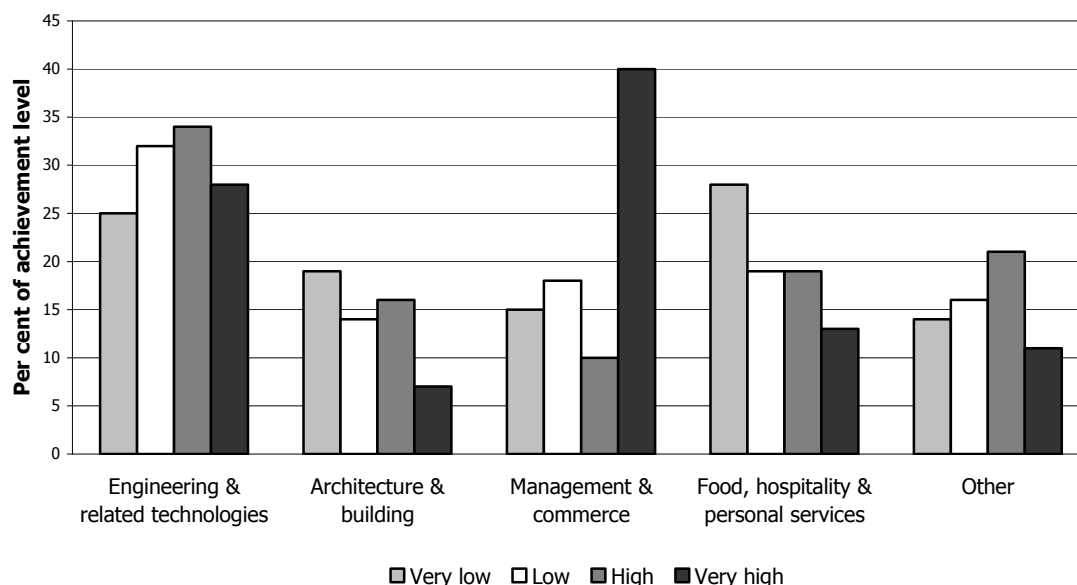


Figure 15 Field of education by science literacy quartiles among school non-completers participating in VET to 2005

Initial destinations of school non-completers: Main activity

While the previous section referred to education and training among school non-completers occurring *by* age 17, attention in the remainder of this chapter turns to activities *at* age 17. The main activities of school non-completers at age 17 are reported in Table 17. The majority of non-completers were fully engaged in 'learning or earning'. Over 60 per cent were in full-time employment (including Australian Apprenticeships); 6 per cent were in full-time education and training; and 2 per cent were combining part-time employment and part-time study. Fourteen per cent of non-completers were partially engaged in learning or earning, mostly in part-time employment. A roughly similar proportion of non-completers were not engaged in employment, education or training. Two-thirds of the latter group were unemployed, while the remainder were not in the labour force.

Table 17 School non-completers' engagement in employment, education and training by gender, 2005

	Males (%)	Females (%)	Persons (%)
<i>Fully engaged</i>			
Full time work	74	47	63
Full time education/training	5	8	6
Part time work and part time education/training	1	3	2
<i>Partially engaged</i>			
Part time work	8	21	13
Part time education/training	<1	2	1
<i>Not engaged</i>			
Unemployed	9	12	10
Not in the labour force and not studying	4	7	5
Total	100	100	100
Total n	787	534	1321

Note: Figures shown in grey are based upon low (<30) cell frequencies. Column percentages may not add exactly to 100 due to rounding.

Marked gender differences were evident in the activities of school non-completers. Just under three-quarters of male non-completers were in full-time employment, compared with less than half of female non-completers. Female non-completers, on the other hand, were far more likely than male non-completers to be partially engaged in employment, education or training (23% and 8% respectively), and slightly more likely than male non-completers not to be engaged in learning or earning (19% and 13% respectively). Of those who were not in the labour force and not studying, females were more likely than males to be engaged in childcare (although the number of 17 year-olds in this category was small and should be treated with caution).

Comparisons with past cohorts

The activities of school non-completers are shaped, in part, by the nature of the economy and labour market in which they find themselves. Considerably higher proportions of non-completers have experienced problems when attempting to enter the labour market during times of economic downturn.

For example, Lamb, Dwyer, and Wyn (2000) reported that 14 per cent of male non-completers in the early 1980s were unemployed in their first post-school year, rising to 28 per cent of male non-completers in the late 1980s, and 30 per cent of male non-completers in the mid 1990s. In contrast, the study cohort entered the labour market at a time of relatively low unemployment and this is reflected in the considerably lower unemployment rate for male school completers in 2005 (9%) (Table 17). Female non-completers' unemployment rate also rose between the early 1980s and the mid 1990s (from 23% to 37%), but was considerably lower in the early 2000s (12%).

In contrast, the proportion of school non-completers in employment in their first post-school year decreased between the early 1980s and mid 1990s (from 79% to 50% for males, and from 54% to 32% for females) (Lamb, Dwyer, & Wyn, 2000). However, the return to more favourable economic conditions was reflected in the comparatively high levels of full-time employment among recent non-completers in 2005 (74% of males and 47% of females) (Table 17).⁶

Initial destinations of school non-completers: Occupations

The occupations of employed school non-completers at age 17, classified by the Australian Standard Classification of Occupations (ASCO) major groups (ABS, 1997), are reported in Table 18.⁷ Just over 40 per cent of employed non-completers were in trades and related occupations. The next most common categories of workers were elementary clerical, sales and service workers (22%), labourers and related workers (18%), and intermediate clerical, sales and service workers (10%). Only 5 per cent of employed non-completers were intermediate production and transport workers, and a further 5 per cent were in upper white-collar occupations (mainly associate professional work).

⁶ Note that the results reported by Lamb, Dwyer, & Wyn (2000) combined both full-time and part-time employment.

⁷ While data pertaining to occupational plans at age 15, reported earlier in this chapter, were coded in accordance to ISCO, occupational data collected from the cohort in subsequent years were coded in accordance to ASCO (2nd edition).

Table 18 Employed school non-completers' occupations by gender, 2005

Occupation group	Males (%)	Females (%)	Persons (%)
Upper white-collar workers ^a	3	8	5
Tradespersons & related workers	56	15	41
Intermediate clerical, sales & service workers	2	23	10
Intermediate production & transport workers	7	2	5
Elementary clerical, sales & service workers	12	39	22
Labourers & related workers	20	14	18
Total	100	100	100
Total n	665	396	1061

Notes: ^aUpper white-collar workers include the following ASCO major groups: managers and administrators; professionals; associate professionals; and advanced clerical and service workers. These categories were combined due to the sample size.

Figures shown in grey are based on low (<30) cell frequencies. Column percentages may not add exactly to 100 due to rounding.

Gender differences were again evident. Employed males were predominantly blue-collar workers: 56 per cent were tradespersons and related workers; 7 per cent were intermediate production and transport workers; and 20 per cent were labourers and related workers. The corresponding figures for employed female non-completers were 15 per cent, 2 per cent and 14 per cent, respectively. Employed females were far more likely than males to be white-collar workers: 39 per cent were elementary clerical, sales and service workers; 23 per cent were intermediate clerical, sales and service workers, and 8 per cent were in upper white-collar positions. The corresponding figures for employed male non-completers were 12 per cent, 2 per cent and 3 per cent, respectively.

Both blue-collar occupations and white-collar occupations encompass a range of skill levels. Another way of examining gender differences in occupations is to examine the skill levels of the jobs obtained. Male non-completers were considerably more likely than female non-completers to enter skilled occupations (such as trades and related work) and were less likely than females to enter unskilled occupations (such as elementary clerical, sales and service work). This is emphasised by examining the broad skill levels of the jobs undertaken by school non-completers (Table 19). Very few school non-completers were in occupations with very high skill levels as defined by the ABS (1997). However, over half of employed male non-completers were in jobs at ASCO skill level 3, compared with only 17 per cent of employed female non-completers. Females were more likely than males to occupy jobs at the lower skill levels.

Table 19 ASCO skill levels of school non-completers' occupations by gender, 2005

ASCO skill level	Definition: Skill level commensurate with ...	Males (%)	Females (%)	Persons (%)
1-2	A bachelor degree or higher qualification, an AQF Diploma or Advanced Diploma or at least 3 years relevant experience	3	6	4
3	An AQF Certificate III or IV or at least 3 years relevant experience	56	17	42
4	An AQF Certificate II or at least 1 years relevant experience	9	24	15
5	The completion of compulsory secondary education or an AQF Certificate I qualification	32	52	39
Total		100	100	100
Total n		665	396	1061

Note: Figures shown in grey are based on low (<30) cell frequencies. Column percentages may not add exactly to 100 due to rounding.

Summary

Many young people have quite ambitious career aspirations, with almost one-half anticipating a professional career and a further one-fifth planning an associate professional occupation. This is not consistent with the opportunities likely to be available to them in the labour market, where 20 per cent of the labour force are currently employed in a professional occupation and 12 per cent are in paraprofessional jobs. Correspondingly, relatively few young people anticipate jobs in clerical and labouring fields, which account for 45 per cent of the current labour force.

Compared with their career aspirations, a small proportion of young people (between 6% and 14%) have ceased their education at a point where they are unlikely to achieve their occupational goals.

Many young people are planning a level of post-school education that is in excess of a minimum requirement for their chosen occupational destinations. Approximately one-third of the young people who expect to have clerical or labouring occupations plan to enrol in university courses.

There is also evidence of planned under-education in that some young people (20% of those nominating professional careers and one-third of those planning trade occupations) intend to undertake qualifications that are below the level typically required for these occupations.

At age 17, a time when most young people in Australia are nearing the completion of senior secondary school, the majority of school non-completers in the study cohort were engaged in employment, education or training. The proportion of non-completers who were unemployed was considerably lower than in the late 1980s and mid 1990s, reflecting the more favourable economic conditions of the early 2000s.

Not all fared well, however. On average, female non-completers experienced less successful transitions from school than male non-completers. A higher proportion of females were only partially engaged in employment, education or training, or were unemployed or not in the labour force. Of those in employment, females were considerably less likely than males to be in skilled occupations and were less likely than males to participate in VET after leaving school.

The chapter also examined the relationship between achievement levels measured at school and participation in education and training after leaving school. There was a positive relationship between mathematical literacy while at school and the subsequent VET participation of school non-completers. Reading and science literacy were related to fields of education that VET participants entered. However, levels of achievement in mathematics, reading and science literacy, and problem solving were unrelated to the level of courses undertaken by school non-completers.

5. NON-PARTICIPATION IN A VOCATIONAL ALTERNATIVE TO SENIOR SECONDARY SCHOOLING

Much of this report has focused on the non-completion of school, but some students leave school to undertake vocational programs as alternatives to completing Year 12 at school and others leave school and find work. MCEETYA (1999) accepted the goal that young people should complete Year 12 at school or a vocationally equivalent program leading to further education and training and employment. This chapter draws attention to the proportions of young people who do not complete school and who do not pursue a vocational alternative or find work. As noted in the Introduction to this report, MCEETYA (2005) operationalised the vocational equivalence of their 1999 goal by specifying that by age 20–24, young people should have gained a vocational qualification at AQF Level II. For the reasons outlined in the Introduction, however, it has been necessary to encompass a broader notion of a vocational alternative to Year 12 completion.

In this chapter, two alternative categories to school non-completion are recognised:

- Neither completion of Year 12 at school nor participation in a post-school vocational program; and
- Neither completion of Year 12, nor participation in formal post-school education and training, nor full-time engagement in a combination of study and work.

The above categories are more inclusive than the school non-completion criterion in that these categories add alternative criteria for success and therefore leave fewer individuals in the unsuccessful group.

The characteristics of the young people who fit into these categories are explored and models are developed that seek to identify the major factors associated with membership in these categories. Non-completion of Year 12 at school has been discussed in Chapter 2. The focus of the current chapter is non-completion of school or a broadly defined vocational alternative. Some analysis is also presented of non-completion of school, non-participation in a vocational alternative and less than full-time engagement in work and study. Although school non-completion was discussed in Chapter 2, the tables in this chapter include the school non-completion outcome as comparisons are made between the three outcome categories.

Characteristics of non-completers of school or a vocational alternative

The characteristics of young people in the three outcome categories are shown in Table 20 (individual background characteristics) and Table 21 (individual school-related characteristics). Although 16 per cent of cohort members were school non-completers, only 7 per cent had not completed Year 12 or undertaken a vocationally equivalent program. That is, 9 per cent of the cohort had pursued a vocational program instead of persisting in upper secondary school education.⁸ Males and young people whose parents had a technical or trade qualification were more likely than the cohort average to be school non-completers, but they did not differ much from the cohort average when a vocationally-equivalent alternative was considered. Approximately 12 per cent of males with trades-qualified parents took a vocational pathway instead of completing upper secondary education at school. A similar proportion (12%) of Indigenous young people took a vocational alternative to Year 12 completion, although their non-participation based on the vocational-equivalence indicator remains well above the cohort average (18% compared with 7%). Other groups more likely to follow vocational pathways include young people from non-metropolitan locations, those from other than nuclear families and those with parents in blue-collar occupations.

⁸ Note also that many young people complete Year 12 at school and pursue a vocational program.

Table 20 Rates of non-completion of school or alternative activities by background characteristics

Characteristic		Non-completion of		
		Year 12 (%)	Year 12 or vocational equivalent (%)	Year 12 or vocational equivalent or fully engaged (%)
Gender	Female	13	7	5
	Male	19	7	4
Indigenous Status	Non-Indigenous	15	7	4
	Indigenous	30	18 ^a	10 ^a
Location	Metropolitan	13	6	4
	Regional	22	9	5
	Rural	20 ^a	11 ^a	6 ^a
Family Structure	Single parent family	22	13	9
	Nuclear family	13	5	3
	Mixed family	22	11	7
	Other	25	12 ^a	8 ^a
Immigrant status	Native students	17	8	5
	First-generation students	11	5	3
	Non-native students	8	4	3
Parental education	University	7	3	2
	Technical or trade qualification	19	8	5
	Completed secondary	15	7	4
	Less than complete secondary	21	11	7
Parent occupational category	White-collar high-skill	10	4	3
	White-collar low-skill	15	8	7
	Blue-collar high-skill	20	8	5
	Blue-collar low-skill	23	11	7
<i>All</i>		<i>16</i>	<i>7</i>	<i>4</i>

Note: ^aThe absolute frequencies in these cells are low (<30) and caution should be exercised in drawing inferences from them.

Most (90%) of those who intended not to complete Year 12 did not do so, but only 28 per cent had not participated in Year 12 or a vocationally-equivalent program (Table 21). Overall, 57 per cent of those intending not to complete Year 12 had undertaken some vocationally-equivalent program.

On the four achievement measures, a consistent pattern is apparent. Almost one in five members of the lowest achievement quartile who does not complete Year 12 undertakes a vocationally-equivalent program. Very few high-achievers (less than 5%) fail to complete Year 12 at school, and only about 2 per cent undertake a vocational alternative to Year 12.

A Vocational Alternative or Work

When alternatives to the standard Year 12 non-completion rate are considered, only 4 per cent of cohort members appear to be 'non-completers'. This figure should not be interpreted as indicating very favourable overall education, training and labour market outcomes for all young people. Some school completers and some of those who undertake vocational programs are not fully engaged following that experience. Indeed, 20 per cent of school completers are not fully engaged in study or work in the year after leaving school. School non-completers experience even more difficult transitions, with 45 per cent being less than fully engaged in the year after leaving school (Dusseldorp Skills Forum, 2007). However, some groups fare much worse than the overall average. (See the final columns of Table 20 and Table 21.) Indigenous young people have the highest level of disadvantage (10%) on this indicator. Children from single-parent or blended families (9%) and children of parents in low-skill occupations (7%) are also disadvantaged.

Table 21 Rates of non-completion of school or alternative activities by school-related characteristics

Characteristic		Non-completion of		
		Year 12 (%)	Year 12 or vocational equivalent (%)	Year 12 or vocational equivalent or fully engaged (%)
Intention to complete Year 12	Intends to complete Year 12	9	5	3
	Unsure about Year 12	69	28	16
	Intends not to complete Year 12	88	32	18
Post-school study intention	No post-school study intent	20	11	7
	Intends post-school study	15	6	4
School sector	Government	20	10	6
	Catholic	11	4	3
	Independent	5	2	2
Reading quartile	Lowest achievement	36	17	11
	Low-mid achievement	19	8	5
	Medium-high achievement	9	4	2
	Highest achievement	3	1	1 ^a
Maths quartile	Lowest achievement	34	17	10
	Low-mid achievement	18	8	5
	Medium-high achievement	11	4	2
	Highest achievement	3	1	1 ^a
Science quartile	Lowest achievement	35	17	11
	Low-mid achievement	17	7	5
	Medium-high achievement	10	4	2
	Highest achievement	3	1	1 ^a
Problem solving quartile	Lowest achievement	35	17	11
	Low-mid achievement	18	8	5
	Medium-high achievement	9	4	2
	Highest achievement	4	1	1 ^a
<i>All</i>		<i>16</i>	<i>7</i>	<i>4</i>

Note: ^aThe absolute frequencies in these cells are low (<30) and caution should be exercised in drawing inferences from them.

Males are substantially less likely than females to be school completers, but males who do not complete school or a vocational equivalent are able to find full-time work more readily than female non-completers. This finding is consistent with those of earlier reports (eg, Lamb & Rumberger, 1999).

In the cross-tabulations presented in the above tables, individual characteristics and school-related variables associated with non-completion of school or a vocational equivalent are likely to be inter-related. In order to separate the influences of these factors and to ascertain which have greater influences, multivariate modelling was undertaken. The results of that modelling are reported below.

Modelling influences on non-completion of school and non-participation in a vocational alternative

The response variable of interest is whether young people fail either to complete Year 12 or to undertake a vocational program. As noted in Chapter 2 in relation to school non-completion, multilevel logistic regression modelling was undertaken using HLM (Raudenbush *et al.*, 2005). A third model, which included full engagement, was not tested because very few individuals were disengaged (4%). The variables used in the models presented here are the same as those described in Chapter 2.

In the case of school non-completion, a set of models (Models A through D) was developed and they are described in Chapter 2. Model D, which incorporates all of the selected explanatory variables, was used for the analysis of school non-completion or non-participation in a vocationally-equivalent course. The results of this model are shown in Table 22. The parameter estimates for school non-completion (Model D) from Chapter 2 are shown in the left column to facilitate comparison. The results of this modelling are examined initially to identify those factors associated with non-completion of school or a vocational alternative, and then to compare the results of this analysis with the results found when the more common outcome, namely non-completion of Year 12 at school, was the criterion.

Table 22 Two-level logistic regression for non-completion of school or an alternative vocational program: Odds ratios

Variable	Non-completion of Year 12 at school Model D	Non-completion of Year 12 or a vocational program Model D
<i>Individual background factors</i>		
<i>Gender (Ref Female)</i>		
Male	1.35	0.88
<i>Indigenous status (Ref non-Indigenous)</i>		
Indigenous	1.07	1.32
<i>Parent education (Ref University degree)</i>		
Less than complete secondary	1.58	1.65
Complete secondary	1.23	1.18
Technical or trade qualification	1.50	1.22
<i>Parent occupation (Ref White-collar, high-skill)</i>		
White-collar, low-skill	0.86	0.95
Blue-collar, high-skill	1.19	1.12
Blue-collar, low-skill	1.36	1.30
<i>Family structure (Ref Non-nuclear family)</i>		
Nuclear family	0.70	0.63
<i>Home language (Ref Non-English speaking)</i>		
English speaking	2.44	2.16
<i>Individual acquired factors</i>		
<i>Year 12 Intent (Ref No intent to complete)</i>		
Definite intention to complete Year 12	0.06	0.29
<i>Post-school intent (Ref No post-school intent)</i>		
Intends post-school study	0.80	0.55
<i>Individual achievement factors</i>		
Reading literacy	0.78	0.91
Mathematical literacy	0.67	0.57
Scientific literacy	0.94	1.01
Problem solving	0.93	0.95
<i>Individual attitude variables</i>		
Attitude to school	0.86	0.96
Student-teacher relations	0.86	0.86
Sense of belonging	1.00	0.96
<i>School factors</i>		
<i>School sector (Ref Government)</i>		
Catholic	1.04	0.92
Independent	1.02	1.07
<i>Location (Ref Metropolitan)</i>		
Non-metropolitan	0.88	1.18
<i>Admission criteria – zoned (Ref Not zoned)</i>		
Zoned	1.48	1.50
<i>School gender (Ref Single-sex)</i>		
Co-educational	1.61	1.85
School average SES	1.02	1.00
Teacher morale	1.18	1.01
Student behaviour	1.28	1.21
<i>Intercept</i>	0.40	0.05

Note: Parameters that are significant at the $p < 0.05$ level are shown in bold; those that are significant at the $p < 0.10$ level are shown in normal font, and those that are non-significant are shown in grey text.

The vocational alternative

Of the individual socio-demographic variables, having parents with the lowest level of education, namely incomplete secondary schooling, or being from an English-speaking home background were associated with an increased likelihood of non-completion of school or a vocational alternative. Coming from a nuclear family substantially reduced the likelihood of school non-completion or participation in a vocational alternative.

Among the school-related individual factors, having an intention to complete Year 12, intending to undertake post-school study, having above average achievement in mathematics (but not reading literacy) and holding favourable views about student–teacher relations at school all reduced the likelihood of non-completion of Year 12 or a vocational alternative.

The school-level variables for which significant influences were observed are school gender, zoning and student behaviour. Students from co-educational rather than single-sex schools were more likely not to complete school or participate in a vocational alternative; students who attended schools for which living in the local area was a criterion for admission were less likely than those who attended non-zoned schools; and schools in which poor student behaviour was noted also had a lower likelihood of school completion or participation in a vocational alternative. Zoning is more common for government than non-government schools, but even when this variable is omitted from the analysis, school sector is not a significant factor.

Comparison of the vocational alternative with Year 12 non-completion

A comparison of the parameters for school non-completion with those for non-completion of school or a vocational alternative reveals some interesting changes.

Among the individual socio-demographic variables, males had a lower probability of completing school than females, but when the vocational alternative is considered, males and females have about equal probabilities of participation. This indicates that vocational pathways are important alternatives to school completion for males. Similarly, the influences of having parents with technical or trade qualifications or having an English-speaking home background—which were significantly associated with an increased likelihood of school non-completion—have reduced or non-significant effects when the alternative vocational pathway is the criterion. This finding is not surprising, as these factors have been found to be related positively to participation in vocational education (Ainley & Corrigan, 2005). Having parents in blue-collar, low skill employment remains significantly associated with a lower likelihood of non-participation beyond compulsory schooling.

The influence of coming from a nuclear family is somewhat stronger when the vocational option is included in the criterion variable. Being part of a nuclear family tends to shield students from early school leaving, but if they do leave early, their family appears to assist them more effectively into alternative educational pathways than is the case for young people from other family structures.

Among the school-related individual variables, the influence of intention to complete Year 12 is, predictably, weaker when the vocational alternative is included than it was for school non-completion, although it remains a very strong predictor of continued involvement in education or training. The influence of intention for post-school study is stronger for the vocational option than it was for school completion. For some young people, their post-school intention was for an apprenticeship, and leaving school before Year 12 to commence one represents the realisation of their goal.

The effect of reading achievement is weaker when the vocational alternative is introduced and is non-significant but the parameter for mathematics achievement is significant and is slightly stronger than it was for school non-completion.⁹ Another interesting observation is the continued significant

⁹ In the presence of reading and mathematics achievement, scientific literacy and problem solving do not add to the explanatory power of the models and are not considered here. See Appendix 4 for analyses of the relationships among and explanatory power of the various achievement variables.

influence of student–teacher relations. This can be interpreted to indicate that where students experience positive relations with teachers at school, they are more likely to continue an involvement in an education or training alternative if they leave before completing Year 12.

Of the school-level variables, school gender — that is, having attended a co-educational school — has a slightly more pronounced influence when the vocational option is included in the outcome measure. As discussed previously, this factor may reflect greater academic and social selectivity of the schools rather than being primarily a gender-related issue. School zoning and student behaviour continue to exert significant influences on non-completion of school or participation in a vocational alternative.

The non-significance of some parameters in the model is thought to reflect the relatively small numbers of participants in some groups. For example, the parameter for Indigenous young people is 1.32, suggesting that these cohort members are 30 per cent more likely not to participate in Year 12 or a vocational equivalent. However, because the parameter is not significantly different from 1, this conclusion is not warranted. A non-significant parameter may indicate that there is no influence, that any potential influence is explained by other variables in the model, that there are too few observations or that the variance within the subgroup is too great for any consistent effect to be observed. The cross-tabulations shown in Table 3 would suggest that there is an effect associated with Indigenous status. The lack of significance for the parameter therefore suggests that this variable is correlated with other variables in the model and may also reflect the relatively small numbers of Indigenous young people in the sample and some variability in their outcomes.

Caution is urged in drawing policy-related inferences from the modelling. The modelling has revealed the influences of some variables, net of the influences of others in the models, and it has achieved this key purpose. The influences of factors that operate through students individually and that operate through the schools they attend have been investigated. These factors, however, operate in complex ways. For example, male and female students may respond differently in single-sex or co-educational schools and the effects of students' attitude towards school may be influenced by aspects of school climate such as teacher morale or student behaviour. A full investigation of these influences lies in the domain of school effectiveness research, so before policy prescriptions are proposed, a more complete analysis, taking into account the complexity of the relationships among variables, is required.

Summary

When participation in formal post-school VET courses was considered as an alternative to persisting to Year 12 at school, the number of young people who appear to be at risk of poor transitions from education was found to decline from 16 per cent to 7 per cent. Thus, the post-school VET alternative is attractive to many young people. The VET alternative is particularly attractive to males, whose school non-completion rate was 19 per cent. When the VET alternative is considered, only 7 per cent of males had either not completed Year 12 or not participated in a VET program. For females, the corresponding proportions are 13 per cent and 7 per cent.

Other groups to benefit from the post-school VET alternative are Indigenous young people, non-metropolitan youth, and those whose parents had technical or trade qualifications or were in blue-collar occupations.

Despite the value of the post-school VET alternative, some groups remain at risk of poor transitions. These include Indigenous young people, those whose parents had less than complete secondary education and young people from other than nuclear families.

Factors that are protective against school non-completion or non-participation in a vocational alternative are having an intention to complete Year 12, having high achievement (especially in mathematics) and having experienced a favourable school climate with positive teacher-student relationships.

6. CONCLUSION

This study has investigated the incidence of early school leaving — leaving school before the completion of Year 12 — among a nationally representative sample of young people who were 15 years old and attending school in 2003. Of the young people included in the study, 16 per cent had left school without completing Year 12. Many of these school non-completers undertook alternative forms of education and training so that 7 per cent of the cohort can be classified as a non-completer of Year 12 at school or a vocational alternative. When the alternative of full-time work is used as an additional criterion, only 4 per cent of the cohort had not completed school or participated in an alternative vocational program or found full-time employment. The 4 per cent figure, however, should not be taken to indicate that only this small proportion of young people will experience problematic transitions. Past experience has shown that some people who complete school or equivalent vocational programs will also experience unsatisfactory transitions from compulsory schooling into the labour force.

Characteristics of non-completers of Year 12

Those most likely to be school non-completers up to 2005 were Indigenous young people, those from non-nuclear families, those whose parents worked in blue-collar occupations or were other than university-educated, those from non-metropolitan locations, those born in Australia, low academic achievers and those who attended government schools.

When the unique contributions of the socio-demographic and school-related factors were teased out, not having an intention to complete school, coming from a non-nuclear family, being a below average academic achiever, being male, having an unfavourable attitude towards school and perceiving student–teacher relations as poor were all associated with an increased likelihood of non-completion.

The most common reasons given for having left school without completing Year 12 included having a job or apprenticeship to go to or wanting one, and not liking school. Those who left for ‘positive’ reasons — for example, to take up an apprenticeship — had more successful transitions (being in full-time work or study) than those who left for ‘negative’ reasons, such as not liking school.

The changing profile of school non-completers

Between the 1980s and the early 2000s, there was a dramatic rise in the proportions of young people staying on to complete Year 12, as well as changes in the diversity of programs that schools offer, in alternative vocational courses and in the labour market. In this changing educational landscape, inequalities relating to gender and socioeconomic background declined, and the magnitude of differences between other socio-demographic groups fluctuated. Despite these changes, however, inequalities remain. The following groups continued to display lower school non-completion rates into the early 2000s: females; young people with parents in high-skill white-collar occupations; young people with university-educated parents; those who attended independent schools; those from metropolitan areas; those with parents from non-English speaking backgrounds; and those with high levels of reading and mathematical literacy.

Post-school plans

Many young people have quite ambitious career aspirations, with approximately two-thirds expecting to be in a professional or paraprofessional occupation by the time they are 30 years old. In the current Australian labour market, about one-third of the labour force is employed in professional or paraprofessional jobs. Relatively few young people anticipate jobs in clerical and labouring fields, which account for 45 per cent of the current labour force. These figures indicate that there is some mismatch between young people’s aspirations and likely opportunities.

Many young people are planning a level of post-school education that is in excess of that required for their expected occupational destinations. Approximately one-third of the young people who expect to have clerical or labouring occupations plan to enrol in university courses.

There is also evidence of planned under-education in that some young people (20% of those nominating professional careers and one-third of those planning trade occupations) intend to undertake qualifications that are below the level typically required for these occupations. A further 7 per cent of young people are unsure of the educational pathway they will pursue and may be at risk of not achieving their career goals.

The initial destinations of school non-completers

It is well documented, both in Australia and internationally, that school non-completers experience poorer labour market outcomes than school completers. Among school non-completers, however, there is considerable variability in pathways followed in the post-school years.

This report examined the activities of school non-completers at the time when their contemporaries were nearing the end of secondary schooling. Over 70 per cent were fully engaged in employment, education or training at age 17. Those who left school in order to accept a job or apprenticeship were especially likely to be in full-time employment, demonstrating an awareness of alternative pathways. In addition, leaving school did not signify the end of learning activities. Over half of recent school non-completers were engaged in alternative education and training pathways such as apprenticeships, traineeships and other VET courses.

These results should not be taken as grounds for complacency, however, as demand for the types of jobs commonly filled by non-completers is highly sensitive to economic fluctuations (Lamb *et al.*, 2000). Non-completers from the study cohort left school at a time of low unemployment. For non-completers entering the labour market in the future in times of economic downturn, it can be anticipated that the proportion experiencing problematic transitions will be considerably greater.

Even in the study cohort, nearly 30 per cent of recent school non-completers did not enter full-time employment, education or training in the initial post-school years. Further, female school non-completers were much more likely than male non-completers to have taken low-skill jobs. Young women were especially likely to be engaged in such activities on a part-time basis only, or to be unemployed or not in the labour force. This is consistent with international research which shows that the employment penalty to non-completion is much more severe for young women than it is for young men (OECD, 2005). In Australia, Marks (2006) has noted the serious implications for future labour market prospects of not securing full-time employment in the early post-school years.

An alternative measure of school non-completion

The incidence of 'non-completion' and the impact of some of the factors associated with school non-completion were reduced when a vocational alternative to post-compulsory schooling was modelled. The non-completion rate was reduced from 16 per cent to 7 per cent, with a greater change for males than for females. Parent's occupation ceased to have a significant effect, and only young people whose parents had the lowest category of educational attainment (non-completion of secondary school) had a greater risk of non-participation in post-compulsory education and training compared with the children of university-educated parents. Being from an English-speaking background and coming from a non-nuclear family continued to dispose young people to non-participation. Males were found to be more likely than females not to complete school, but male school non-completers were more likely than female non-completers to undertake vocational programs or to find employment.

These findings suggest that an alternative interpretation of 'school completion' — one that includes completion of a vocational equivalent — is a promising indicator. While the apparent retention rate has been widely used, its limitations as a measure of school completion are well documented. The

apparent retention rate is easy to calculate, as it relies on ABS data that are readily available. Individual completion data, as used in this study, are more difficult to obtain and to use as a national attainment indicator.

Policy implications

The decision to leave school may be at least partially based upon an awareness of alternative training and labour market opportunities, and some groups may be more aware of these opportunities than others. Nevertheless, the current report demonstrates that some socio-demographic groups face ongoing disadvantage. There is a need to ensure that young people and their families receive high quality career guidance so as to be aware of the different pathways available and the implications of school non-completion.

There remains a need to identify and provide intensive assistance for the sub-group of school non-completers who are partially engaged or not engaged in employment, education or training. In particular, it is necessary to ensure the availability and awareness of a range of pathways for young women, given the potentially problematic transitions experienced by female school non-completers. Although males are more likely than females to leave school early, male school non-completers are considerably more likely than female school non-completers to obtain full-time employment and apprenticeships, and this has implications for their future labour market prospects.

In addition to support for students in 'at-risk' socio-demographic groups, there is some evidence that a sizeable proportion of young people would benefit from information about career opportunities and about the education and training pathways that are necessary in order to achieve career goals.

Interventions directed at providing quality information about curriculum options within senior schooling, vocational alternatives to post-compulsory schooling, and labour market opportunities and requirements, especially for young people who are most at risk of early leaving, are desirable. Given the differences in opportunities and consequences of early leaving for males and females, interventions and advice will need to be targeted appropriately.

Literacy and numeracy testing is now well established in Australian schools and these have provided considerable data about system performance and individual achievement. Given the continuing strong influence of low levels of literacy and numeracy on school non-completion and effective literacy instruction for low achievers, more attention to remediation in these critical areas is likely to improve outcomes for low achievers.

Past research has found, as did this study, that students from non-government schools were less likely than government school students to be non-completers. The modelling that sought to identify the unique factors associated with non-completion indicated that school sector itself is not the key explanatory variable. Rather, a range of school-related factors emerged as significant. These include peer group effects such as the behaviour of students in the school. Other school-related factors include the quality of student–teacher relations in the school and, to a lesser extent, teacher morale within schools. One of the school-level factors to exert a reasonably strong influence was whether the school was co-educational or single-sex. However, it is possible that whether a school was co-educational or single-sex may reflect other characteristics, such as school selectivity. More detailed analyses of the individual and school-related factors and their interactions are warranted before any policy implications are drawn from these findings.

School climate variables, including student–teacher relations, student behaviour and teacher morale, have been identified as factors associated with early leaving. Moreover, the quality of student–teacher relations appears to have a residual effect beyond school. Attention to these factors may contribute to enhanced retention to Year 12 or to greater participation in vocational alternatives to school completion.

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APPENDIX 1 THE 2003 COHORT OF 15 YEAR-OLDS

Data for this report are based upon a cohort of young people who were 15 years old in 2003. The sample participated in the Programme for International Student Assessment (PISA) in 2003 and subsequently formed part of the ongoing Longitudinal Surveys of Australian Youth (LSAY).

PISA 2003

PISA is an initiative of the Organisation for Economic Co-operation and Development (OECD). In 2003, it covered 41 countries including Australia. An international consortium led by ACER managed the design and implementation of PISA 2003. The primary goal was to measure competencies that would equip students to participate productively and adaptively in their life beyond school. Assessments in mathematical literacy, reading literacy, scientific literacy, and problem solving were administered to students in their schools, and these assessments can be used for analyses of subsequent educational and labour market participation, as in the present report. Students also completed a background questionnaire about their families, educational and vocational plans, and attitudes to school.

The target sample for PISA 2003 was young people who were 15 years old and enrolled at secondary school at the time of testing. In Australia in July/August 2003, 12 551 students from 321 schools across all States and Territories and all sectors of schooling participated in PISA.¹⁰ Schools were selected with a probability proportional to the enrolment of 15 year-olds in each school, and stratification ensured the correct ratios of government, Catholic, and independent schools. The sample was also stratified by State/Territory, and schools in smaller States were over-sampled. Within each school, a random sample of 50 students was selected. In addition, Indigenous students were over-sampled by inviting all age-eligible Indigenous students in the sampled schools to participate. The overall weighted response rate for schools was 90.4 per cent, and the weighted response rate for students was 83.3 per cent.

Further information on PISA 2003 is provided in Thomson, Cresswell, and De Bortoli (2004) and at <http://www.pisa.oecd.org>.

LSAY 2003 cohort of 15 year-olds

The Australian PISA 2003 sample became part of LSAY, which was jointly managed by the Australian Council for Educational Research (ACER) and the Australian Government Department of Education, Science and Training (DEST). The primary aim of LSAY is to examine the education, training and labour market experiences of groups of young Australians, beginning from their middle years of secondary schooling. Data collected include basic demographic variables, as well as information about educational, training, and labour force participation and experiences extending over a number of years.

Each year, members of the 2003 sample of 15 year-olds are interviewed by telephone. The initial telephone survey was conducted in 2003 with 11 619 of the PISA participants¹¹, and a response rate of 89 per cent (10 370 persons) was achieved. The most recent data used in this report were collected in 2005.¹² In that round of data collection, 8691 interviews were successfully completed. Sample attrition or losses can occur at each wave of data collection in longitudinal surveys such as LSAY. All analyses in this report have been weighted to take into account attrition as well as the original sample design. Further details on the weighting procedure can be found in Rothman (2007).

¹⁰ Sample members were born between 1 May 1987 and 30 April 1988.

¹¹ 912 students had withdrawn from the study before the 2003 telephone survey or had not provided correct contact information on the PISA student questionnaire form.

¹² The 2005 data collection was conducted from July 2005 to January 2006.

APPENDIX 2 MEASURES

Figure 16 provides a summary of the major variables used in this report. Four groups of variables are used: socio-demographic characteristics; individual-level factors associated with secondary schooling; school-level factors associated with secondary schooling; and post-school activities at age 17. The socio-demographic characteristics and individual-level and school-level secondary schooling measures are used in the analysis of factors associated with school non-completion (Chapter 2) and not engaging in earning or learning (Chapter 5). Selected variables from these three groups are also used in the analysis of trends in school non-completion (Chapter 3). The fourth set of variables — post-school activities at age 17 — is used to describe the initial destinations of school non-completers (Chapter 4). A description of each of the variables is provided below.

Socio-demographic characteristics	Secondary schooling (individual-level)	Post-school activities at age 17
Gender Parents' education Parents' occupation Ethnicity Indigenous status Family structure	Mathematical literacy Reading literacy Science literacy Problem solving Year 12 intention Post-school plans Attitudes to schools Student–teacher relations Sense of belonging Year 12 completion status Reasons for school non-completion	Main activities Occupation Education and training - Participation - Course level - Field of education
	Secondary schooling (school-level) Region School sector Socio-cultural status Single-sex or mixed school Teacher morale Student behaviour	

Figure 16 Summary of individual measures used in the report

Socio-demographic characteristics

Ethnicity: Two measures of ethnicity were used in the report. Both were based upon PISA data collected in 2003.

In the cross-tabulations shown in Chapter 2 and Chapter 5, the PISA derived variable 'Immigrant status' was used. This variable is based on the country of birth of the student and their parents and young people were classified as being 'native students', 'first generation' or 'non-native students'. In the regression modelling, it was necessary to use the most parsimonious variables available, and for those analyses home language was used as a background measure. Young people were classified as coming from homes where either English or another language was most frequently used.

To enable comparisons with previously published results based upon earlier cohorts of young people, it was necessary to generate a third measure of ethnicity for the analysis reported in Chapter 3. This measure is based upon parents' country of birth and comprises three categories: at least one parent born in Australia; at least one parent born in another English-speaking country; and both parents born in a non-English speaking country.

Family structure: Family structure was identified as being a nuclear family (respondent living with mother and father); a single parent family (respondent living with mother or father); a blended (mixed) family (respondent living with parent and step-parent); or other (respondent in another family arrangement). These classifications were used in bivariate analyses, but in multivariate analyses, where greater parsimony in variables is desirable, these categories were dichotomised as nuclear or non-nuclear family structures. In the bivariate analyses, little variation in school non-completion was apparent between the various non-nuclear family arrangements.

Indigenous status: Indigenous status is derived from the question “Are you of Aboriginal or Torres Strait Islander origin?” It is a self-report dichotomous variable.

Parents’ education: Two measures of parents’ education were used in the report. Both were based upon 2003 PISA data on the schooling and post-school qualifications of respondents’ mothers/female guardians and fathers/male guardians.

In the analyses presented in Chapter 2 and Chapter 5, four categories of parent’s education were recognised, namely a university qualification, other post-secondary qualifications (mainly trade or technical qualifications), completion of secondary schooling, and less than complete secondary schooling. Where it was available, mother’s education was used but if this was not available, father’s education was substituted.

To enable comparisons with previously published results based upon earlier cohorts of young people, it was necessary to generate a second measure of parents’ education for the analysis reported in Chapter 3. Information on the parent with the highest level of education was used for this measure. It comprises three categories: university qualifications; other post secondary qualifications; and secondary schooling or less.

Parents’ occupation: Two measures of parents’ occupation were used in the report. Both were based upon 2003 PISA data on the main jobs of respondents’ mothers/female guardians and fathers/male guardians. Where a parent/guardian was not working at the time of data collection, respondents were asked to describe their parent’s/guardian’s last main job.

For the analyses shown in Chapter 2 and Chapter 5, four categories of parents’ occupation, based on the PISA questionnaire, were used. These were white-collar high-skill, white-collar low-skill, blue-collar high-skill and blue-collar low-skill. Father’s occupation was used, but if information was not available for this variable, mother’s occupation was substituted.

To enable comparisons with previously published results based upon earlier cohorts of young people, it was necessary to generate a second measure of parents’ occupation for the analysis reported in Chapter 3. Information on the parent with the highest status occupation was used for this measure. It comprises four categories: professional/managerial (white-collar high-skill); clerical/sales (white-collar low-skill); skilled manual (blue-collar high-skill); and unskilled manual (blue-collar low-skill).

Gender: Data on gender were collected in PISA and the first wave of LSAY. The results were compared and discrepancies resolved.

School factors (individual-level)

Achievement in mathematical literacy, reading literacy, scientific literacy and problem solving: These variables are based upon PISA tests conducted in 2003 when the respondents were 15 years old. The tests were designed measure skills deemed to be necessary for future life, rather than school curricula. More specifically, the definitions of the domains covered by PISA 2003 are:

Mathematical literacy

An individual's capacity to identify and understand the role that mathematics plays in the world, to make well-founded judgements and to use and engage with mathematics in ways that meet the needs of that individual's life as a constructive, concerned and reflective citizen.

Reading literacy

An individual's capacity to understand, use and reflect on written texts, in order to achieve one's goals, to develop one's knowledge and potential and to participate in society.

Scientific literacy

The capacity to use scientific knowledge, to identify questions and to draw evidence-based conclusions in order to understand and help make decisions about the natural world and the changes made to it through human activity.

Problem solving

An individual's ability to use cognitive processes to confront and resolve real, cross-disciplinary situations where the solution path is not immediately obvious and where the literacy domains or curricular areas that might be applicable are not within a single domain of mathematics, science or reading. (OECD, 2003, pp. 14-15)

Data on each of the four domains were used in three ways for the purposes of this report.

For the frequencies reported in Chapter 3, it was necessary to combine mathematical literacy and reading literacy scores to enable comparisons with previously published results based upon earlier cohorts of young people. The combined scores were divided into quartiles, based upon the entire active sample at the time of the most recent data collection (in 2005).

For cross-tabulations reported in other chapters, four variables were generated: mathematical literacy quartile; reading literacy quartile; scientific literacy quartile; and problem solving quartile. The quartiles were based upon the entire active sample at the time of the most recent data collection (in 2005).

In addition to the achievement quartiles, and to facilitate comparisons with other PISA results, the PISA performance level categories were used in analyses reported in Appendix 4. For reading literacy, five performance levels are recognised; for mathematical literacy, six levels. For both reading and mathematical literacy, those people whose performance was below the lowest recognised performance category were combined with those people within that performance band. For problem solving, three performance levels are recognised in the PISA testing, and performance was classified as being below level 1 or in one of the three recognised levels. The PISA testing has not identified performance bands for scientific literacy and for this domain, where categories were required, quartiles were used. In the regression analyses, individual scores rather than performance levels were used.

Attitudes to schools and student-teacher relations: In the PISA Student Questionnaire, students were asked (Question 24) to indicate their attitudes towards school using four indicator items to which students indicated their level of agreement on a four-point scale. Students' responses were Rasch scaled to produce an interval scale, and scores on that scale were used in the regression analyses.

Similarly, Question 26 of the PISA Student Questionnaire was a five item scale seeking students' perceptions of the quality of student-teacher relations. Students indicated their agreement with these items on a four-level response scale. Responses to these items were Rasch scaled and scores on the resulting interval scale were used in regression analyses.

Educational plans and aspirations: Information on aspects of students' educational plans and expectations was sought through questions in the PISA Student Questionnaire and the supplementary LSAY questionnaire. These included:

- **Intention to complete Year 12:** In the LSAY questionnaire, students responded to the prompt 'Do you plan to go on to Year 12?' The response options were 'Yes', 'No' or 'Don't know'. In multivariate analyses, this variable was dichotomised into those who had a definite intention to complete Year 12 and those who did not.
- **Post-school study intention:** In the 2003 LSAY questionnaire students responded to the question 'What do you plan to do in the year after you leave school?' Responses coded were 'Go to university', 'Get an apprenticeship', 'Get a traineeship', 'Go to a TAFE college', 'Do some other study or training', 'Join the defence forces', 'Travel', 'Other' and 'Don't know'.
- **Job expectations at age 30:** The question 'What kind of job do you expect to have when you are about 30 years old?' was asked in the PISA Educational Career Questionnaire. Responses were coded to the nine ISCO major groups as listed in Table 12.
- **Reasons for intending not to complete Year 12:** If students indicated they did not intend to go on to Year 12, they were asked to nominate reasons from a list of 12 possible reasons. They were also asked to nominate the main reason for their intention to leave school before Year 12. These reasons are listed in Table 7 (possible reasons) and Table 8 (main reason).
- **Reasons for not completing Year 12:** In the annual LSAY interviews, if students had left school without completing Year 12, they were asked for possible reasons and the main reason they had left. The reasons offered are similar to those described above.

Sense of belonging: A set of six items was used in the PISA Student Questionnaire (Question 27) seeking information on students' sense of belonging at school. One of the prompts was 'I feel like I belong'. Four response options, from 'Strongly agree' to 'Strongly disagree', were offered. These responses had been subject to Rasch analysis and the PISA scaled score was used in regression analyses.

Year 12 completion status (school completer/school non-completer): Year 12 completion status is a dichotomous variable. Persons who remained at school until at least September of Year 12 were classified as school completers. Persons who left school before September of Year 12 were classified as school non-completers. A small number of defined school non-completers indicated that they had received a school leaving certificate and a valid tertiary entrance score. These cases were treated as school completers.

Due to the age of the sample and the timing of the annual interviews for the most recent data collection (from July 2005 to January 2006), some respondents were still attending school but had not yet reached September of Year 12. Two approaches were adopted in the classification of these cases. Those who were in Year 11 or below were excluded from analysis as it was not possible from the 2005 data to know whether they will go on to complete Year 12 (unweighted n=662). Those who were in Year 12 were classified as school completers (unweighted n=2360). The former approach may result in a slight overestimation of the school non-completion rate for the cohort if it is assumed that the majority of the affected group will go on to complete Year 12. Conversely, the latter approach may result in a very slight underestimation of the school non-completion rate for the cohort as some of the affected group may have left school between the time of the 2005 interview and September 2005.

School factors (school-level)

Geographic location: Two measures of geographic location were used in the report. Sample information on the location of the school attended at age 15, coded to the MCEETYA Schools Geographic Class Location, forms the basis of these measures (Thomson et al., 2004). For the analyses presented in Chapter 2 and Chapter 5, a three-category collapsed version of the classification was used, namely metropolitan, regional and rural. In the multilevel modelling, location was dichotomised to metropolitan and non-metropolitan, as the number of rural and remote schools was relatively small compared with the numbers of metropolitan and regional schools.

To enable comparisons with previously published results based upon earlier cohorts of young people, it was necessary to generate a second measure for the analysis reported in Chapter 3. This dichotomous measure is a collapsed version of the MCEETYA Schools Geographical Location Classification (Thomson et al., 2004, pp. 9-10). The metropolitan category comprises metropolitan zone mainland State capital city regions and metropolitan zone major urban statistical districts with populations of 1 000 000 or more (for example, Queanbeyan, Cairns, Geelong, and Hobart). The non-metropolitan category comprises various provincial and remote zones (including provincial cities and other non-remote provincial areas such as Darwin, Ballarat, Bundaberg, Geraldton and Tamworth).

School sector: School sector refers to the type of school attended at age 15. It is a trichotomous variable: government; Catholic; and other independent.

School-average economic social cultural status: The PISA derived variable economic social cultural status (ESCS) for individuals was averaged over young people in each school to produce a school-average ESCS variable at the school level in the multilevel logistic regression analyses. The individual level ESCS score is based on parents' occupational status and educational attainment, the educational resources, cultural possessions computing resources and number of books in the home.

Single-sex or coeducational school: The numbers of male and female students reported in the PISA School Questionnaire were used to generate a dichotomous variable for single-sex or coeducational schools.

School zoning: Schools whose admission criteria include students residing in a prescribed area or attending certain feeder schools were classed as 'zoned schools'. This is based on responses to Question 10a of the PISA Schools Questionnaire in which principals were asked whether residence in a particular area was considered in selecting students. Those schools that used it as a prerequisite or a high priority were classified as zoned schools; others were not.

Student behaviour: This scale is based on seven of the thirteen items of Question 25 of the PISA School Questionnaire. The remaining six items of this scale referred to teachers. The questionnaire was completed by school principals. The responses were Rasch-scaled and the interval scores were used in the multilevel regression analyses. High scores on this scale indicate problems with student behaviour that hinder learning in the school.

Teacher morale: This Rasch-scaled interval score is based on the four indicators in Question 24 of the PISA School Questionnaire. This questionnaire was completed by school principals. High scores on this scale indicate problems with teacher morale in the school.

Post-school destinations (school non-completers only)

Main activities (initial destinations): This variable refers to the activities of school non-completers at the time of the most recent data collection (in late 2005) when they were approximately 17 years old. It comprises six categories. The first three categories refer to school non-completers who were fully engaged in 'earning or learning': those in full-time work (including those who were undertaking education and training as well); those in full-time education and

training (excluding those who were in full-time employment as well); and those combining part-time employment and part-time education and training. The next category refers to school non-completers who were partially engaged in 'learning or earning': those engaged in either part-time work or part-time study. The final two categories refer to school non-completers who were not engaged in 'learning or earning': those who were unemployed; and those who were not in the labour force and not studying.

Occupation: This variable refers to the occupation of employed school non-completers at the time of the most recent data collection (in late 2005) when they were approximately 17 years old. Occupations, coded to the Australian Standard Classification of Occupations (second edition) major groups (ABS, 1997), were collapsed into six categories: upper white-collar (managers and administrators, professionals, associate professionals, and advanced clerical and service workers); tradespersons and related workers; intermediate clerical, sales and service workers; intermediate production and transport workers; elementary clerical, sales and service workers; and labourers and related workers.

Participation in education and training: This variable is based upon information collected in the 2004 and 2005 interviews and is restricted to the post-school education and training of school non-completers. Participation is defined as the completion of a qualification since leaving school and/or undertaking post-school education and training at the time of the most recent data collection (in late 2005) when the respondents were approximately 17 years old. It is measured by four categories: participation in an apprenticeship; participation in a traineeship; participation in other vocational education and training; and no participation. For persons who had completed more than one qualification, or who had completed a qualification and were working towards a second qualification, participation refers to the first completed qualification.

Course level is measured by four categories: certificate I/II; certificate III/IV; certificate (level unknown); and diplomas, advanced diplomas and associate degrees. This variable is based upon information collected in the 2004 and 2005 interviews. It relates to school non-completers who had completed a qualification since leaving school and/or were undertaking education and training at the time of the most recent data collection (in late 2005) when they were approximately 17 years old. For persons who had completed more than one qualification, or who had completed a qualification and were working towards a second qualification, course level refers to the level of the first completed qualification.

Field of education is classified according to the Australian Classification of Education (ASCED) broad fields of education (ABS, 2000). Four ASCED broad fields are reported: engineering and related technologies; architecture and building; management and commerce; and food, hospitality and personal services. The remaining eight ASCED broad fields were collapsed into a residual 'other' category due to sample numbers. This variable is based upon information collected in the 2004 and 2005 interviews. It relates to school non-completers who had completed a qualification since leaving school and/or were undertaking education and training at the time of the most recent data collection (in late 2005) when they were approximately 17 years old. For persons who had completed more than one qualification, or who had completed a qualification and were working towards a second qualification, field of education refers to the field of the first completed qualification.

APPENDIX 3 ANALYTIC TECHNIQUES

A variety of analytic techniques were used in this report. This appendix describes the methods used to identify factors associated with school non-completion, measure trends in school non-completion for various socio-demographic groups, and describe the initial destinations of school non-completers.

Identifying factors associated with school non-completion or not engaging in learning or earning

In Chapter 2 and Chapter 5, two methods are used to identify factors associated with school non-completion. First, school non-completion (or its equivalent) is tabulated against a range of individual and school-related variables. Second, in order to identify the influences of factors independent of all others in the model, a series of regression models was developed. Because the outcome variable (school non-completion or its equivalent) is dichotomous, logistic regression was employed. Further, because the sample was drawn in two stages with schools being selected first and then students sampled within those schools, the sample had a two-level hierarchical structure. For this reason, the logistic regression models were two-level or hierarchical ones. The program HLM (Raudenbush et al., 2005) was used for these analyses. In these analyses, variables that are associated with individuals, such as gender or achievement, were introduced at the individual level. Variables that are associated with the school, such as teacher morale, were included at the second or school level of the model. Logistic regression was also employed in Chapter 2 to examine the influences on school non-completion of achievement in the four domains of the PISA achievement tests. Logistic regression produces odds ratios and these are used to compare the influences of variables included in the models. Odds ratios are described below.

The achievement variables, reading literacy, mathematical literacy, science literacy and problem solving, are represented in the PISA data files as sets of five plausible values. The regression analyses were repeated five times, once for each set of plausible values in accordance with recommended procedures (OECD, 2005, pp. 72-80). The parameters (odds ratios) reported in results tables (e.g. Table 5) are the mean values of parameters from the repeated analyses.

Measuring trends in school non-completion for various socio-demographic groups

In Chapter 3, trends in school non-completion among selected groups of young people are described. There is a variety of ways in which differences between groups can be summarised. These include absolute percentage differences, participation ratios, relative percentage differences and odds ratios. It is easiest to explain each of these measures by way of the following hypothetical example, which is drawn from Long, Carpenter, and Hayden (1999).

Table 23 Percentage of cohort who were non-completers (two hypothetical cohorts)

	Cohort 1	Cohort 2
Total cohort	40	80
Gender		
Males	35	75
Females	45	85

Focusing initially on Cohort 1, the *absolute non-completion rate* was 40 per cent, with 35 per cent of males and 45 per cent of females not completing Year 12 (Table 23). Long, Carpenter, and Hayden (1999) note three ways in which the gender difference can be reported.

- Report the difference as 10 percentage points. This is the *absolute percentage difference* between males and females for school non-completion. When the text refers to a ‘gap’ of so many percentage points in participation rates, it is referring to the absolute percentage differences.
- Report the *ratio* of female to male non-completion ($45/35 = 1.29$). That is, females leave before the completion of secondary school 1.29 times more than males. Similarly it can be reported that females are 29 per cent more likely to be non-completers than males. This is the *relative percentage difference* between males and females.
- Report the ratio of the odds of a female not completing rather than completing school ($45/55 = 0.82$) to the odds of a male not completing rather than completing school ($35/65 = 0.54$). The ratio of these two ratios is called the *odds ratio* ($0.82/0.54 = 1.52$). Odds ratios are always positive. An odds ratio equal to one signifies no effect of the variable concerned on non-completion. Odds ratios above one indicate an increased likelihood of non-completion and odds ratios below one indicate a decreased likelihood of non-completion. The further an odds ratio is from one, the stronger the relationship. This measure has several desirable properties. First, it uses more information in describing the association between two variables than measures of relative percentage differences; in this example being male, being female, not completing, completing. Thus it is a more ‘complete’ measure. Second, it has the property of ‘marginal invariance’, that is, the strength of an association between two measures is not affected by their distributions. Third, odds ratios can also be used to interpret the effects of factors on non-completion in a multivariate context (as in Chapter 2 and Chapter 5), which is not possible with other summary measures. Odds ratios are used in preference to ratios and relative percentage differences when describing differences between groups.

In this report, both absolute change and relative change are examined.

- *Absolute change:* By comparing absolute percentage differences for different cohorts, it is possible to assess whether or not the gaps in non-completion between categories of young people changed in absolute terms over the period. To take the hypothetical example presented in Table 23, the absolute percentage difference in non-completion rates between males and females did not change; it was 10 percentage points in both cohorts.
- *Relative change:* One problem with relying solely on a measure of absolute change is that the changing representation of different groups among non-completers and the total population of young people are not taken into account. A comparison of the odds ratios between Cohort 1 (1.52) and Cohort 2 (1.89), suggest that relative differences increased.

The hypothetical example demonstrates that the two approaches to measuring change can yield quite different answers and the exclusive use of one approach may lead to misleading interpretations.

Describing the initial destinations of school non-completers

In Chapter 4, percentages and cross-tabulations are used to describe the post-school educational, training and labour market activities of school non-completers at age 17.

APPENDIX 4 ACHIEVEMENT DOMAINS AND SCHOOL NON-COMPLETION

In previous LSAY and PISA surveys, reading literacy and numeracy scores have been used as measures of educational achievement. For the Y03 cohort, the additional measures of scientific literacy and problem solving achievement are available. Two questions arise in relation to these achievement variables. Do they add to the predictive power of models of outcomes over and above that provided by the reading and mathematics assessments? Are outcomes related differently to achievement in the four domains?

Associations between Achievement Measures and School Non-completion

The first of the questions (see above) can be addressed by examining the correlations among these variables and by reference to models in which they are used as explanatory variables. The correlations among the variables are quite high suggesting that they reflect a single overall achievement factor with modest variations across the four domains (See Table 24).

Table 24 Correlations among the four achievement measures

	Reading Literacy	Mathematical Literacy	Scientific Literacy
Mathematical Literacy	0.76		
Scientific Literacy	0.84	0.84	
Problem Solving	0.81	0.89	0.83

When all four achievement variables were used together, as in Model D in Table 5, the parameters for reading and mathematics are significant while those for scientific literacy and problem solving are not. The model was re-run with three alternative combinations of these achievement variables, namely with only reading and mathematics, with only scientific literacy and problem solving, and with all four variables. The results of these variants of Model D, showing only the parameters for these achievement variables, are presented in Table 25. When used without reading and mathematics scores, scientific literacy and problem solving have parameters that are highly significant and similar to those of the reading and mathematics pair. However, as noted in Model D (see Table 5), reading and mathematics retain their explanatory power with parameters similar to those found when this pair was used without the other achievement variables, but scientific literacy and problem solving do not.

Table 25 Odds ratios for four achievement domains on school non-completion

Combinations of variables	Reading Literacy	Mathematical Literacy	Scientific Literacy	Problem Solving
Reading Literacy and Mathematical Literacy	0.72	0.63		
Scientific Literacy and Problem Solving			0.69	0.70
All domains	0.73	0.62	0.94	1.08

Note: Bold text indicates highly significant ($p < 0.01$); grey text indicates non-significant ($p > 0.10$)

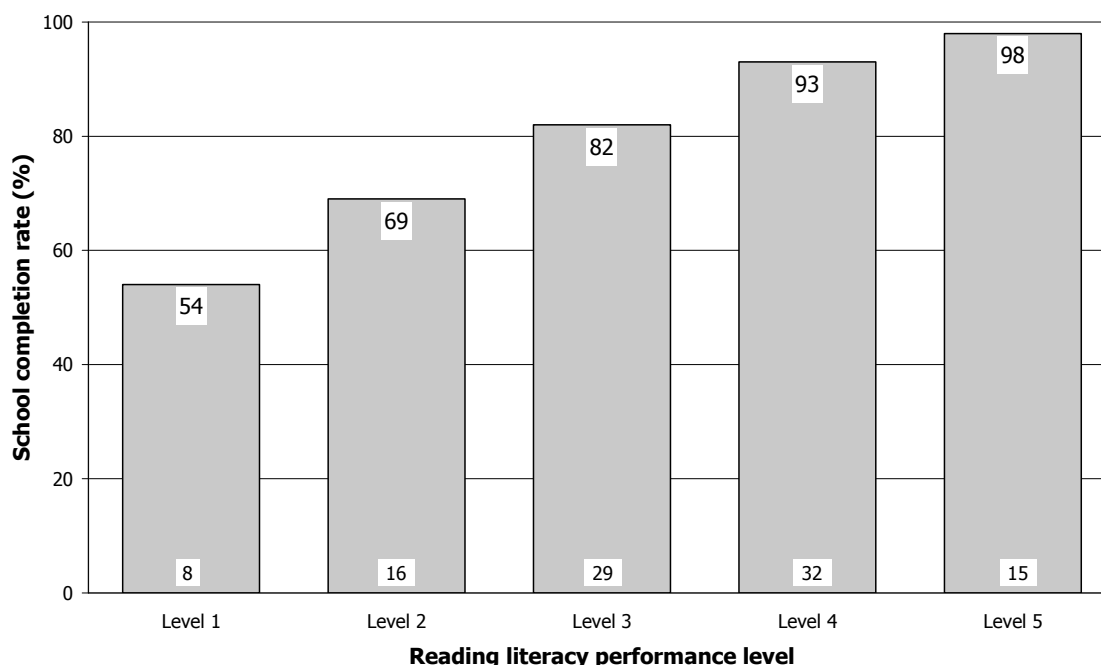
It is reasonable to conclude that, while the scientific literacy and problem solving measures are of intrinsic interest, they do not add to the explanatory power in models of school non-completion in the presence of measures of reading and mathematics achievement. Further, the strong and persistent relationships between reading and mathematical literacy achievement with school completion suggest that these variables have a fundamental role to play in learning and more broadly in skills development.

Patterns of School Completion and Levels of Achievement

Knighton and Bussière (2006) reported that the secondary school completion rate in Canada by age 19 years was 87 per cent. This is slightly higher than the 83 per cent found for Australian young people, aged 17 years, in the present study. The Canadian analysis revealed that youth with the highest level of reading achievement had a completion rate of almost 100 per cent while only 62 per cent of those in the lowest achievement level had completed their secondary schooling. Similar comparisons are made below for reading and mathematical literacy for Australian young people.

Reading Literacy Achievement

The school completion rate for Australia is plotted, in Figure 17, against the reading literacy performance levels defined in the PISA testing program (Thomson *et al.*, 2004, pp. 92-95).¹³ For reading literacy, five performance levels were recognised. People who perform at the lowest level would have considerable difficulty in learning from written information as they are unable to ‘understand relationships, form or apply simple categories, or construe meaning’ (Thomson *et al.*, 2004, p. 94).



Note: The number near the top of each column is the percentage of students at that performance level that completed Year 12 at school. The number near the base of each column is the percentage of the sample performing at that level.

Figure 17 School completion rates by PISA reading literacy performance levels

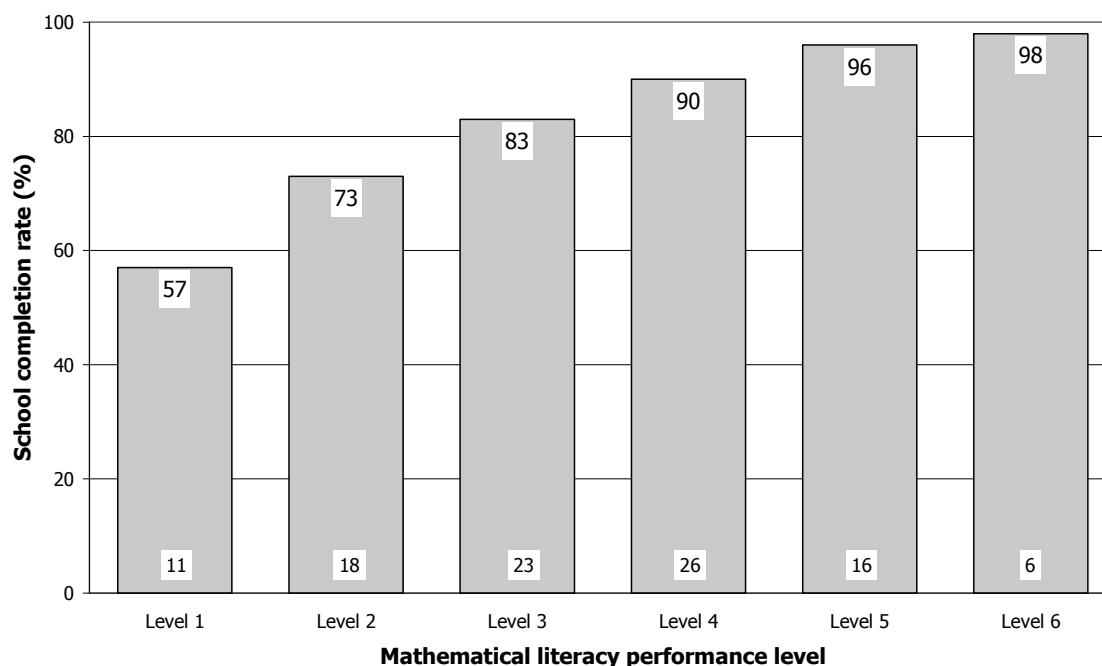
The rate of school completion among young people in the highest performance level is similar to Canada's, but the rate among the lowest performing young people, at 50 per cent, is below the Canadian rate for the corresponding group. If, however, the criterion variable is school completion or its vocational equivalent, the completion rate for the lowest performing group is 75 per cent. The difference between the ‘school completion’ and ‘school completion or a vocational equivalent’ rates may be taken to indicate that the vocational option is an important one for low-achieving young people in Australia. De Broucker (2005) observed that having large proportions of young adults with low-skill levels was a characteristic of countries that lacked strong school-based vocational

¹³ Completion rate has been chosen to facilitate comparison with PISA reports rather than school non-completion, which has been used elsewhere in this report.

programs. It appears that the role fulfilled by school-based vocational programs in some countries is provided through post-school vocational programs for lower-achieving school non-completers in Australia.

Mathematics Achievement

Six levels of mathematical literacy were discriminated in the PISA testing (Thomson et al., 2004, pp. 42-44). People who perform at the lowest level are 'able to identify and carry out routine procedures according to instructions' but are not 'capable of direct reasoning and making literal interpretations of the results' (Thomson et al., 2004, p. 43). The proportion of young people who completed Year 12 is plotted by mathematical literacy performance level in Figure 18.



Note: The number near the top of each column is the percentage of students at that performance level that completed Year 12 at school. The number near the base of each column is the percentage of the sample performing at that level.

Figure 18 School completion rate by PISA mathematical literacy performance levels

A greater proportion of Australian young people perform at the lower two levels of mathematical literacy (29%) than is the case for reading literacy (24%). Further, in the models of non-completion represented in Table 5, the influence of mathematical literacy on school non-completion was greater than that of reading literacy. A person whose reading achievement is one standard deviation below average is 30 per cent more likely than the cohort average to leave school without completing Year 12, whereas a person whose mathematical literacy score is one standard deviation below average is 37 per cent more likely than average to be a school non-completer. These observations suggest the need for a closer examination of the relationship between school non-completion and achievement in all four domains.

Non-linear Relationships between Achievement and School Completion

The proportions of young people who complete school for each performance level for both reading and mathematical literacy appear to follow a non-linear relation, with lower-performing young people appearing to be particularly at risk of not completing school. In order to investigate the

degree of non-linearity between achievement and school non-completion, a set of logistic regression models for school non-completion were developed for each of the four achievement domains separately. In each case, the achievement score and its square (divided by 500) were modelled against school non-completion. In all cases, the parameter for the square of the achievement score was significant, indicating that the relationship is significantly non-linear. The parameters were used to generate plots of the odds of school non-completion by achievement. For reading and mathematical literacy, these plots are shown in Figure 19. Plots for scientific literacy and problem solving are not shown, but are very similar to the plot for mathematical literacy.

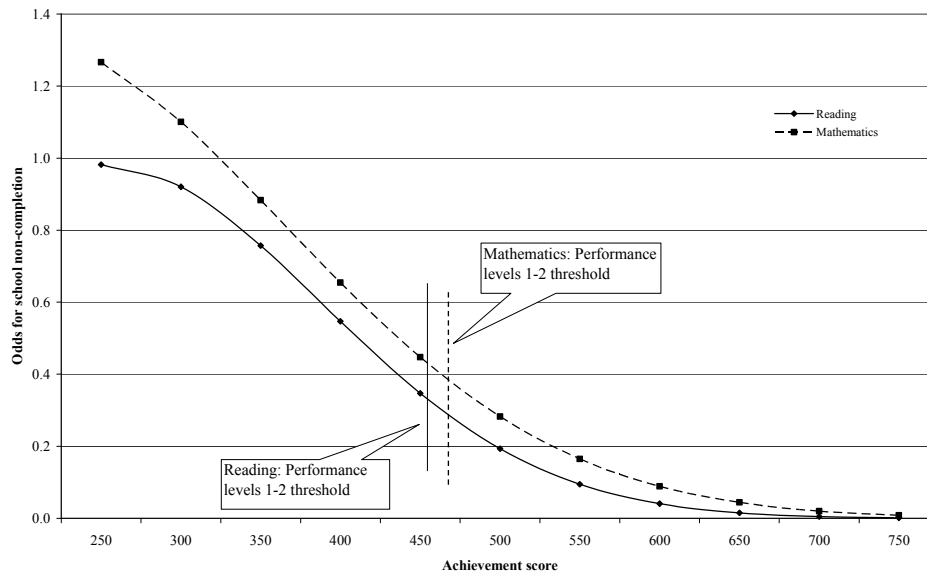


Figure 19 The odds of school non-completion by reading and mathematical literacy scores

Two features of the plots of the odds of non-completion against achievement are worthy of note. First, the relationships between achievement and the likelihood of non-completion follow similar patterns for reading and mathematical literacy, with a slightly greater risk of non-completion for low performance in mathematics compared with reading. The parameters for these two curves are, however, not significantly different. Second, the curves are substantially non-linear, indicating that poorer performing students are at quite elevated risks of school non-completion. There is no marked threshold level at which the likelihood of school non-completion rises sharply, although there is an inflection in the curve at about a score of 550. This is the lower threshold of performance level three on the PISA scales for reading (552) and mathematics (544). These observations suggest that raising the performance of low achieving students, especially those in the range below 550 (and in the lowest two achievement levels for reading and mathematical literacy), could be predicted, on the basis of this modelling, to lead to a reduction in school non-completion for these young people.

Achievement, intention to participate in Year 12 and Year 12 completion

Khoo and Ainley (2005) demonstrated that intention to participate in Year 12 study mediated achievement and Year 12 participation. In the analyses reported above, no significant differences were found in the pattern of relationships between achievement in the four domains of the PISA testing and school non-completion. In order to detect possible differential influences between the achievement domains and intention to participate in Year 12, a similar set of analyses to those for school non-completion was undertaken, but using intention for Year 12 non-participation as the response variable. As with the previous analyses, curvilinear relationships were modelled.¹⁴ The

¹⁴ Intention for non-participation was modelled to maintain the same sense as non-completion, the response variable in the previous set of analyses.

results of the modelling are presented in Figure 20. The curves for reading and mathematical literacy only are shown because the curves for scientific literacy and problem solving lie between the two that are plotted and because the parameter estimates for the achievement scores are not significantly different across the four achievement domains.

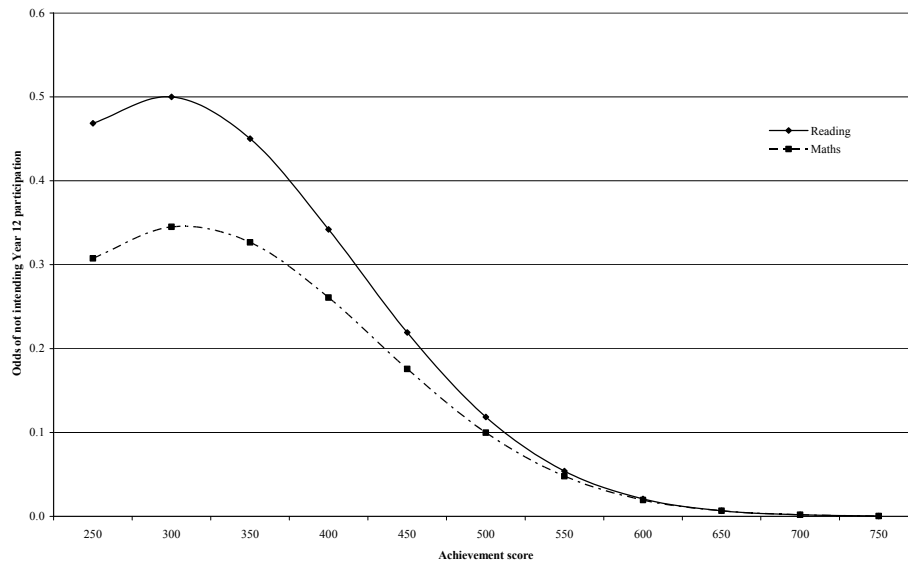


Figure 20 The odds of intending Year 12 non-participation by reading and mathematical literacy scores

The odds of not intending to participate in Year 12 are below unity across the entire ability range reflecting intention of over 90 per cent of the cohort to persist at school to Year 12. Student with low achievement scores, however, are more likely than their higher achieving peers to plan to leave school before Year 12. This tendency appears to be slightly stronger for low achieving students in reading literacy than for those in mathematical literacy, although the parameters for these curves are not significantly different. This observation appears to be inconsistent with the parameters found for school non-completion for reading (0.73) and mathematical literacy (0.62) (see Table 5). The detail in the model developed by Khoo and Ainley (2005, see Figure 5, p. 14), however, showed that, in addition to the direct influences between these two achievement domains and intention to participate in Year 12, mathematical literacy had a substantially stronger direct influence on Year 12 participation than did reading literacy.

The results of the above analyses are taken to indicate that there are no significant differences in the patterns of influence that they exert on intention to persist to Year 12. The path analyses reported by Khoo and Ainley (2005) revealed that achievement influences persistence to Year 12 largely through intention to persist, but that mathematical literacy achievement exerts a stronger direct influence on participation in Year 12 than does reading literacy. Further, the modelling of the influences of all four achievement domains shows that, separately, they exert significant influences on school non-completion, but that when combined the influences of reading and mathematical literacy dominate.

APPENDIX 5 SUPPLEMENTARY TABLES

Table 26 Rates of school non-completion by selected socio-demographic and academic characteristics, early 1980s to mid-2000s

Sample	Males					Females				
	1980/81 Year 10 cohort	1988/89 Year 10 cohort	1992/93 Year 10 cohort	1995 Year 9 cohort	2003 cohort of 15 year- olds	1980/81 Year 10 cohort	1988/89 Year 10 cohort	1992/93 Year 10 cohort	1995 Year 9 cohort	2003 cohort of 15 year- olds
Age 17 (modal calendar year)	1982/83 (%)	1990/91 (%)	1994/95 (%)	1997 (%)	2005 (%)	1982/83 (%)	1990/91 (%)	1994/95 (%)	1997 (%)	2005 (%)
<i>Total cohort</i>	62	46	30	26	19	51	37	18	16	13
<i>Parental occupational group</i>										
Professional/managerial	33	27	16	17	15	23	19	7	11	10
Clerical/sales/personal service	43	29	22	23	26	35	25	14	14	19
Skilled manual	68	48	30	34	24	51	38	17	21	17
Semi/unskilled manual	71	60	38	40	33	68	45	21	22	18
<i>Parental education</i>										
University	25	19	15	13	10	23	15	5	8	7
Post-secondary	43	31	22	29	27	32	23	12	13	17
Secondary or less	67	52	36	27	25	56	40	20	18	19
<i>School sector</i>										
Government	67	52	35	32	25	58	43	21	21	17
Catholic	53	30	18	14	13	37	22	10	10	9
Independent	21	17	11	13	7	18	13	5	10	4
<i>Region</i>										
Metropolitan	60	43	28	21	16	49	32	14	12	12
Non-metropolitan	69	54	43	34	29	58	48	25	21	17
<i>Ethnicity (parents' country of birth)</i>										
Non-English speaking country	47	31	19	13	8	43	24	9	9	4
Australia	65	49	33	29	22	51	40	19	19	15
Other English speaking country	66	50	27	28	21	67	41	13	19	18

Sources: 1980/81, 1988/89 & 1992/93 Year 10 cohorts (Lamb, Dwyer & Wyn, 2000: Table 1.1, Table 3.1); 1995 Year 9 cohort (McMillan & Marks, 2003: Table 3); 2003 cohort of 15 year-olds (new analysis)

Table 27 School non-completion by socio-demographic and academic characteristics, early 1980s to late 1990s (odds ratios)

Sample	Males					Females				
	1980/81 Year 10 cohort	1988/89 Year 10 cohort	1992/93 Year 10 cohort	1995 Year 9 cohort	2003 cohort of 15 year- olds	1980/81 Year 10 cohort	1988/89 Year 10 cohort	1992/93 Year 10 cohort	1995 Year 9 cohort	2003 cohort of 15 year- olds
Age 17 (modal calendar year)	1982/83	1990/91	1994/95	1997	2005	1982/83	1990/91	1994/95	1997	2005
<i>Gender</i>										
Female	1.0	1.0	1.0	1.0	1.0	.	.	.	.	.
Male	1.6	1.5	2.0	1.8	1.6	.	.	.	.	.
<i>Parental occupational group</i>										
Professional/managerial	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Clerical/sales/personal service	1.5	1.0	1.5	1.5	2.0	1.8	1.4	2.2	1.3	2.0
Skilled manual	4.3	2.5	2.3	2.5	1.8	3.5	2.6	2.7	2.2	1.8
Semi/unskilled manual	5.0	4.1	3.2	3.2	2.8	7.1	3.5	3.5	2.3	1.9
<i>Parental education</i>										
University	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Post-secondary	2.3	1.9	1.6	2.7	3.5	1.6	1.7	2.6	1.7	3.0
Secondary or less	6.1	4.6	3.2	2.5	3.1	4.3	3.8	4.8	2.5	3.3
<i>School sector</i>										
Independent	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Catholic	4.2	2.1	1.8	1.1	1.9	2.7	1.9	2.1	1.0	2.2
Government	7.6	5.3	4.4	3.1	4.3	6.3	5.0	5.1	2.4	4.7
<i>Region</i>										
Metropolitan	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Non-metropolitan	1.5	1.6	1.9	1.9	2.1	1.4	2.0	2.0	1.9	1.5
<i>Ethnicity (parents' country of birth)</i>										
Non-English speaking country	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Australia	2.1	2.1	2.1	2.7	3.0	1.4	2.1	2.3	2.4	3.9
Other English speaking country	2.2	2.2	1.6	2.6	2.8	2.7	2.2	1.5	2.4	4.6

Sources: 1980/81, 1988/89 & 1992/93 Year 10 cohorts (Lamb, Dwyer & Wyn, 2000: Table 1.1, Table 3.1); 1995 Year 9 cohort (McMillan & Marks, 2003: Table 3); 2003 cohort of 15 year-olds (new analysis)

Table 28 School non-completion by reading and mathematics quartiles, early 1980s to late 1990s (percentages and odds ratios)

Sample	Cohort born in 1965	Cohort born in 1970	Cohort born in 1975	1995 Year 9 cohort	2003 cohort of 15 year-olds
Age 17 (modal calendar year)	1982	1987	1992	1997	2005
Panel 1: Percentages					
Very high	39	17	8	8	3
High	64	43	17	15	10
Low	69	49	29	26	18
Very low	84	78	42	38	36
Panel 2: Odds Ratios					
Very high	1.0	1.0	1.0	1.0	1.0
High	2.8	3.7	2.4	2.0	3.7
Low	3.5	4.7	4.7	4.0	7.6
Very low	8.2	17.3	8.3	7.0	19.3

Sources: Estimates for the cohorts born in 1961, 1965, 1970 and 1975 were derived from Year 12 completion rates reported by Long, Carpenter, & Hayden (1999, Table 14). Estimates for the 1995 Year 9 cohort were first reported by McMillan & Marks (2003: Table 3). Estimates for the 2003 cohort of 15 year-olds are based upon new analysis.

Table 29 School non-completers' participation in post-school vocational education and training by literacy at age 15, 2005

	Very low (lowest quartile) (%)	Low (second quartile) (%)	High (third quartile) (%)	Very high (highest quartile) (%)
Mathematical literacy				
Apprenticeship	25	32	30	33
Traineeship	10	7	11	17
Other VET	15	16	19	13
Not in VET	50	44	40	37
Total	100	100	100	100
Total n	676	368	216	70
Reading literacy				
Apprenticeship	32	25	23	20
Traineeship	8	9	17	14
Other VET	14	18	20	18
Not in VET	47	48	40	49
Total	100	100	100	100
Total n	720	369	190	52
Scientific literacy				
Apprenticeship	27	30	30	26
Traineeship	8	10	9	24
Other VET	15	20	16	10
Not in VET	50	40	44	40
Total	100	100	100	100
Total n	714	334	215	67
Problem solving				
Apprenticeship	28	28	25	35
Traineeship	9	10	10	15
Other VET	14	19	18	15
Not in VET	49	43	47	35
Total	100	100	100	100
Total n	708	358	185	80

Notes: Participation comprises qualifications completed since leaving school and participation at the time of the 2005 interview. Column percentages may not add exactly to 100 due to rounding.

Table 30 Certificate level by literacy at age 15, 2005

	Very low (lowest quartile) (%)	Low (second quartile) (%)	High/very high (third & fourth quartiles) (%)
Mathematical literacy			
Certificate I & II	60	58	50
Certificate III & IV	40	42	50
Total	100	100	100
Total n	296	168	142
Reading literacy			
Certificate I & II	58	56	55
Certificate III & IV	42	44	45
Total	100	100	100
Total n	326	162	119
Scientific literacy			
Certificate I & II	59	55	54
Certificate III & IV	41	45	46
Total	100	100	100
Total n	299	173	135
Problem solving			
Certificate I & II	60	57	50
Certificate III & IV	40	43	50
Total	100	100	100
Total n	306	175	126

Note: Certificate (level unknown), diploma, advanced diploma and associate degree participants were excluded and the top two achievement quartiles were combined due to the low number in some categories. Column percentages may not add exactly to 100 due to rounding.

Table 31 Field of education by literacy at age 15, 2005

	Very low (lowest quartile) (%)	Low (second quartile) (%)	High (third quartile) (%)	Very high (highest quartile) (%)
Mathematical literacy				
Engineering & related technologies	25	32	31	33
Architecture & building	16	18	15	15
Management & commerce	16	14	19	20
Food, hospitality & personal services	29	19	16	17
Other	13	18	19	16
Total	100	100	100	100
Total n	340	205	129	44
Reading literacy				
Engineering & related technologies	31	28	24	19
Architecture & building	20	14	9	6
Management & commerce	13	18	22	37
Food, hospitality & personal services	24	21	21	25
Other	12	18	25	12
Total	100	100	100	100
Total n	385	192	114	26
Scientific literacy				
Engineering & related technologies	25	32	34	28
Architecture & building	19	14	16	7
Management & commerce	15	18	10	40
Food, hospitality & personal services	28	19	19	13
Other	14	16	21	11
Total	100	100	100	100
Total n	358	199	120	40
Problem solving				
Engineering & related technologies	28	27	34	31
Architecture & building	17	17	12	15
Management & commerce	15	16	19	20
Food, hospitality & personal services	27	19	17	19
Other	13	20	18	14
Total	100	100	100	100
Total n	362	206	97	52

Notes: Field of education refers to courses completed since leaving school and courses being undertaken at the time of the 2005 interview. Column percentages may not add exactly to 100 due to rounding.