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ABSTRACT

A study examined patterns of course enrollments in year 12 and consequences of student course enrollments on education, training, and work experiences to age 19 using data collected between 1990-97 by the Australian Youth Survey. Findings indicated course-taking patterns in year 12 varied substantially according to gender, early school achievement, socioeconomic status, type of school attended, and ethnicity. About 1 in 5 boys and 1 in 12 girls enrolled in maths and physical sciences; girls more often took biological sciences or chemistry with maths and humanities; about twice as many students from low socioeconomic status (SES) as from high SES backgrounds enrolled in courses combining vocational education and technology subjects; and nearly 25 percent of students from high SES and 15 percent from low SES backgrounds enrolled in maths and science. Young people from higher SES backgrounds, from private schools, who are higher achievers earlier in schools, and from non-English-speaking backgrounds tended more often to study courses that lead to higher education and the professions. Disadvantaged students tended to participate in courses leading to vocational education and training or more often to immediate entry to the labor market and experienced frequent spells of unemployment. (Contains 24 references, 16 tables, and 8 figures.) (YLB)

Longitudinal Surveys of Australian Youth

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Stephen Lamb
Katrina Ball

September 1999

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- Lamb, S. *School Achievement and Initial Education and Labour Market Outcomes* (LSAY Research Report No. 4). Melbourne: ACER, July 1997.
- Marks, G. *Attitudes to School Life: Their influences and their effects on achievement and leaving school* (LSAY Research Report No. 5). Melbourne: ACER, September 1998.
- Fleming, N. & Marks, G. *Well-being among Young Australians: Effects of work and home life for four Youth in Transition cohorts.* (LSAY Research Report No. 6). Melbourne: ACER, September 1998.
- Marks, G. & Fleming, N. *Factors Influencing Youth Unemployment in Australia: 1980-1994.* (LSAY Research Report No. 7). Melbourne: ACER, September 1998.
- Marks, G. & Fleming, N. *Youth Earnings in Australia: 1980-1994: A comparison of three youth cohorts.* (LSAY Research Report No. 8). Melbourne: ACER, September 1998.
- Robinson, L. *The Effects of Part-time Work on School Students.* (LSAY Research Report No. 9). Melbourne: ACER, March 1999.
- Fullarton, S. *Work Experience and Work Placements in Secondary School Education.* (LSAY Research Report No. 10). Melbourne: ACER, June 1999.
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Longitudinal Surveys of Australian Youth

Research Report Number 12

CURRICULUM AND CAREERS: THE EDUCATION AND LABOUR MARKET CONSEQUENCES OF YEAR 12 SUBJECT CHOICE

Stephen Lamb (*Australian Council for Educational Research*)
Katrina Ball (*National Centre for Vocational Education Research*)

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EXECUTIVE SUMMARY

This report examines patterns of course enrolments in Year 12 and the consequences of students' course enrolments on their education, training and work experiences to age 19. In particular, it looks at what happens to young people enrolled in different senior school subjects as they move from school to post-school education and training and to work. The analysis is based on data collected between 1990 and 1997 as part of the *Australian Youth Survey (AYS)*, a national longitudinal survey of young people.

Course enrolments were derived from information on the subjects students studied in Year 12. Course enrolments comprised the combinations or clusters of subjects students studied. The combinations were identified using statistical clustering techniques with 70 subjects identified from information provided by respondents. Twenty different groupings of subjects, defined for the purposes of this report as courses of study, were identified.

Course-taking patterns in Year 12 vary substantially according to gender, early school achievement, socioeconomic status, type of school attended and ethnicity. Students from different backgrounds tend to enrol in different groups of subjects and as a result are located in different parts of the curriculum. For example:

- About one in five boys enrol in maths and the physical sciences compared to one in 12 girls;

- Girls more often take the biological sciences or chemistry with maths and humanities. Over 25 per cent of females enrolled in a combination of maths, science and humanities subjects. The rate for males was 15 per cent;

- Over 15 per cent of students from low socioeconomic status (SES) backgrounds enrol in courses combining vocational education and technology subjects compared to about 8 per cent of high SES students;

- Nearly 25 per cent of students from high SES backgrounds enrol in maths and science courses. The corresponding rate for low SES students is 15 per cent;

- Over 14 per cent of government school students enrol in courses combining vocational education and technology subjects, compared to 8 per cent of Catholic school students and 4 per cent of students in non-Catholic private schools.

The importance of the differences in the patterns of course-taking is related to the different educational and occupational opportunities that the various courses lead to. Young people from higher SES backgrounds, those from private schools, those who are high achievers earlier in school, and students from non-English-speaking backgrounds tend more often to study the courses that are avenues to higher education and the professions. Disadvantaged students tend to participate in courses that lead to vocational education and training or more often to entry to the labour market without any further formal education or training. Their experiences in the labour market vary, although frequent spells of unemployment were a common experience up to age 19 for young people who took courses that predominantly did not lead on to any further education or training.

The findings suggest that while the senior school curriculum operates to transmit the influences of student background and early school achievement on post-school education and career trajectories, it also has an independent influence. After controlling for background, achievement and school differences, there remain large variations in the likelihood of participating in further education and training based on subject choice in Year 12. These findings show that student course-taking is a strong predictor of post-school outcomes.

Curriculum and Careers: The Education and Labour Market Consequences of Year 12 Subject Choice

1

Introduction

In recent years, the secondary school curriculum and students' subject choices have received close attention from educational researchers and policy-makers in Australia. There has been increasing interest in some basic questions, such as who takes what kinds of courses and what are the consequences of students' courses of study on their school outcomes and their future education and work opportunities. These questions are being asked at a time when the majority of young people now participate in the postcompulsory years and schools are facing the challenge of having to both accommodate larger numbers of students while responding to broad differences in student needs and aptitudes.

A considerable amount of attention has been given to the issue of access to the curriculum — who gains access to different subjects and courses. Most of this work focuses on course and subject enrolments and suggests that there are social, gender and regional differences in the types of subjects students study in the senior secondary years (Ainley, Jones & Navaratnam, 1990; Ainley et al., 1994; McKenzie, Harrold & Sturman, 1996; Teese, McLean & Polesel, 1993; Teese et al., 1995). For example, this work shows that girls are much less likely than boys to study physics, but are more likely to enrol in the biological sciences.

Much less attention has been given to the consequences of subject enrolments on young people's future education and work experiences. Yet, the subjects young people study in senior secondary school can have a profound effect on their educational and occupational careers. Those who study physics and chemistry, for example, have a wide range of further education courses available to them, from engineering to the arts. Those who do not do any science or mathematics subjects may have more limited choices both in further education and in the types of jobs they want to pursue. The types of courses and subjects young people study have the potential to influence, among other things, the opportunities for post-school education and training, the types of jobs young people obtain, and their earnings. So, as well as looking at subject enrolments, it is also important to look at their consequences.

That is what this report seeks to do. It aims to examine in close detail the courses students enrol in and the consequences of students' courses of study on their education, training and work experiences to age 19. In particular, it looks at what happens to young people enrolled in different senior school subjects as they move from school to post-school education and training and to work.

POLICY CONTEXT

One of the most striking features of secondary schooling in Australia over the past two decades has been the growth in school completion. Until the early 1980s less than a third of Australian students remained to Year 12. By the early 1990s the rate increased

to more than two-thirds. While there has been a small downturn during the 1990s, today the majority of young people participate to the end of secondary school.

With the senior secondary years transformed into a mass system, the postcompulsory curriculum has become a critical issue in Australian education. In the past when only a minority of young people completed Year 12, the postcompulsory curriculum was largely comprised of academic subjects and its role was mainly to prepare students for entry to university. As the rate of school completion has grown, so too has the need to provide programs that can accommodate the large differences in abilities, learning styles and motivations associated with a more diverse population of students. This has placed considerable pressure on schools to provide programs that not only raise general levels of learning and improve educational outcomes for all (meeting the goal of equality of opportunity), but also that are sensitive to wide differences in abilities and interests. These are different pressures to those of 30 years ago. Then the main issue facing schools was how to get more young people to remain into the postcompulsory years. The main issue now is how to get all groups of young people to make the best use out of the extra years of schooling.

In response to these pressures, most school systems around Australia have introduced curricular and certificate reforms over the last decade with the aim of boosting levels of participation and improving outcomes for young people. Some schools, for example, have introduced vocational programs with structured workplace learning aimed at providing training in industry-related skills and helping improve students' employment chances. Other schools have expanded the number of subject options and broadened their course offerings across a range of curriculum areas. It is generally true (though not universally) that curricular offerings in secondary schools are more expansive than they were 20 years ago. Students today generally enjoy more course options in senior school.

The sorts of changes that have been implemented have been undertaken with the view that participation in courses and subjects in senior secondary school can play a major part in shaping future careers. But what role does the curriculum in its current form play in shaping young people's post-school education and training careers? Does the curriculum in senior secondary school serve all groups of young people equally well? Are all groups of young people making the best use of the postcompulsory years?

AIMS

This project aims to assist policy makers, researchers, teachers and young people themselves by providing information on the effects of curriculum provision and curriculum structure on student outcomes. There has been some debate over whether curricular reform over the last decade, including the expansion in course offerings in schools, has improved outcomes for young people or whether it has created unequal quality in educational experiences and later opportunity. There is also concern about whether the senior school curriculum works to perpetuate or to alleviate differences associated with socioeconomic background, gender and region. This issue has been particularly relevant for educators and researchers concerned with equal access to education and to the opportunities associated with participation in postcompulsory schooling. At a time when some States are undertaking reviews of their senior school programs and when little information is available on the destinations of students, the current report provides extensive data on the patterns of subject enrolments and the effects of enrolments on post-school education and training, and employment prospects. In particular, it provides:

1. a framework for analysing national participation in senior secondary school subjects;
2. an analysis of the subject enrolment patterns among senior secondary school students giving particular attention to relationships with gender, socioeconomic status, ethnicity, rural or urban place of residence, school type, and early school achievement;
3. an examination of the consequences of students' subject enrolments for their access to post-school education and training and work opportunities; and
4. an assessment of whether differences in outcomes linked to social background, school achievement and to gender are influenced by the subjects young people study in school.

Without this sort of information it is difficult to evaluate the effects curriculum policies and practices are having on the nation's young people.

DATA AND METHODOLOGY

The analysis is based on data collected in the *Australian Youth Survey (AYS)*, a national longitudinal survey of 11,500 16-27 year-olds. *AYS* began in 1989 and was designed to provide policy-relevant information on young people's education, training, work and transition to adulthood. *AYS* base-year data were collected in 1989 and follow-up data were collected annually until 1997. New nationally representative samples of 16 year-olds (originally surveyed as 14 year-olds) were added each year from 1990 to 1994 to provide up-to-date information on school and transition patterns. In the current report, the sixteen year-old *AYS* samples for 1990, 1991, 1992, 1993 and 1994 are used to explore the links between subject enrolments and post-school outcomes. Subject data are provided on almost 3,200 Year 12 students.

Three groups of variables are used in the study. First, from 1990, information was collected in *AYS* on the subjects students studied in Years 11 and 12. There are, of course, major differences between States in the courses and subjects offered in the senior years and *AYS* is a national survey with respondents from all of the States and Territories. To reflect the differences in courses and course structures across the systems, students supplied information on the subjects specific to the state in which they were at school. The subject lists changed from year-to-year as changes took place in course offerings in each State. This allowed data collected on subjects and courses to reflect State differences and to incorporate variations in line with changes in curriculum provision.

The second set of variables relates to background characteristics and includes gender, rural or urban place of residence at age 14, type of school attended, socioeconomic status (based on parents' occupation), ethnicity, and early school achievement (measured by performance on numeracy and reading comprehension tests undertaken at age 14). These variables are used to look at who gains access to different subjects and to help interpret differences in outcomes.

The third group of variables used in this study is related to education and labour market experiences. It includes information on school-to-work transition and covers the main activities of school leavers until they are 19 years of age. Entry to higher education, participation in further education and training, periods of unemployment, type of work, and earnings are the main variables used.

In order to examine the same period of post-school activity, post-secondary education and employment activities are measured at age 19. For those who completed Year 12 in 1994, the activities were measured at the time of interview in 1997. For those who completed in 1992, activities were measured in 1995. In addition to activities three years later, durations of activity were also calculated measuring time spent in post-secondary education and employment activities for the entire period from the time of completing Year 12 until the time of interview three years later.

Full descriptions of the variables are provided in Appendix 1.

DEFINITION OF COURSE OF STUDY

In the past, research on subject choice and course enrolments has tended to study curriculum access either by reporting participation rates in individual subjects or reporting participation in course types based on key learning or subject areas. In this study, however, the aim is to provide information on the actual combinations or clusters of subjects students study in Year 12. The rationale for doing this is that the education and labour market consequences are likely to reflect the effects of combinations of subjects rather than individual subject enrolments. This is certainly true when considering tertiary entrance scores, for example. Students select a range of subjects, sometimes drawn from a wide range of key learning or subject areas, and there is a need in looking at curriculum effects on outcomes to attempt to measure some of this diversity.

To do this, preliminary analyses were undertaken using a clustering technique — tree analysis — and principal components analysis with 70 subjects identified from information provided by respondents.[1] The results were then used as a basis to identify the most common groupings of subjects (subjects which tended to be taken together).

Twenty different groupings of subjects, defined for the purposes of this report as courses of study, were identified. These groupings by no means provide an exhaustive list of subject combinations. However, they represent some of the most commonly selected groups of subjects, and encompass the range of subjects studied by the 3200 young people concerned.

Students were then allocated to the groupings based on the numbers of subjects they take in combination. Students allocated to a group of subjects take a minimum of three subjects from that group. Most take more. Students were allocated to the group in which they take the highest number of subjects in combination. This means that the courses of study are mutually exclusive; students are treated as taking only one course of study.

The groupings of subjects, and the numbers of students in the sample that were studying them, are provided in Table 1. For presentational purposes, the 20 groupings of subjects are classified according to eight broad fields of study.

[1] For information on the tree based methodology, see Chambers and Hastie (1992).

Table 1 Year 12 subject groups and sample sizes (%)*

Subject Group	Percentage of Enrolments	Number of Students
ARTS AND HUMANITIES		
French,German,music,literature,history,geography	3.3	104
Art,art other,graphics,music,media studies	4.6	147
History,geography,gen. maths,humanities other, art	3.9	123
Total	**11.8**	**374**
BUSINESS STUDIES		
Maths,economics,accounting,computing	5.6	178
Economics,accounting, legal studies,general maths,biology,computing	3.5	110
Total	**9.1**	**288**
BUSINESS STUDIES AND HUMANITIES		
Maths,economics,geography,history,art	3.2	102
Business studies,legal studies,textiles,general maths,biology	4.9	156
Total	**8.1**	**258**
BUSINESS STUDIES AND SCIENCES		
Maths,economics,chemistry,biology,computing	**4.7**	**151**
SCIENCES AND MATHS		
Maths and physical sciences	13.0	414
Maths,chemistry,biology,other science,computing	6.1	196
Total	**19.1**	**610**
SCIENCES AND HUMANITIES		
Maths,chemistry,literature,music,French,history,art	3.4	110
General maths,biology,history,geography,health,art	10.2	323
Maths,biology,history,geography,art,LOTE	8.1	259
Total	**21.7**	**692**
HEALTH SCIENCES AND PHYSICAL EDUCATION		
Physical ed.,home economics,health,biology,gen. science,gen. maths	3.5	111
Maths,biology,phys. ed.,health,home economics,legal studies	5.3	168
Health,general maths,general science,biology,home economics	4.4	139
Total	**13.2**	**418**
VOCATIONAL EDUCATION AND TECHNOLOGY**		
Technical drawing,technology,general maths,computing	2.9	92
Agriculture,craft,technology,general maths,health,gen. science	2.9	91
Typing,secretarial studies,gen. maths, home ec., applied computing	3.4	107
Maths, industrial arts, industrial technology,technical drawing	3.1	100
Total	**12.3**	**390**
TOTAL	**100**	**3181**

NOTES:

* English was excluded from the analysis because it was studied by the majority of students, irrespective of subject grouping.

** The subjects grouped as "vocational education and technology" do not necessarily correspond to the growing number of subjects and courses that are now termed "VET in schools".

MATHS: "General maths" represents the least academically-demanding level of maths (including subjects such as Maths in Society). "Maths" represents the university-qualifying level of maths study. "Advanced maths" represents the subjects such as extension or specialist maths which are often required for entry to courses such as engineering.

SOURCE: Tabulations from *Australian Youth Survey* based on the 1990-1994 16 year-old samples and follow-up surveys (unweighted N=6,052; weighted N=1,189,846).

ORGANISATION OF THE REPORT

Chapter 2, which follows, examines the issue of curriculum access. It presents information on enrolment rates across different groups of subjects. The analysis offers a breakdown of enrolment rates by socioeconomic status, gender, school type, ethnicity, early school achievement and region.

In Chapter 3 the focus is on the issue of participation in post-school education and training. The rates of participation in higher education, TAFE, apprenticeships and traineeships are examined according to the different courses of study in Year 12. Of interest is the relationship between senior school study and transition to the different types of further education and training.

Chapter 4 turns to labour market outcomes. It looks at whether there are differences in the employment and unemployment experiences of young people according to the types of subjects they study in the senior years of school. The sorts of jobs young people gain, the time they take to find jobs, and the income they get are analysed. This comparison attempts to assess the benefits attached to different senior school fields of study.

Chapter 5 summarises the major findings and then takes up the issue of whether or not differences in outcomes are influenced by the subjects young people study in school. In this discussion there is also some consideration of the nature of the links between senior school study, social background, gender and labour market outcomes.

2

Participation in the Curriculum

Much larger numbers of young people are completing school today than compared to 20 years ago or even 10 years ago. But the populations of young people remaining to the final year are not necessarily doing the same courses or are not necessarily enrolled in subjects which have the same value when it comes to gaining entry to university or TAFE, obtaining an apprenticeship, or getting a job. The issue of participation is an important one to consider if different groups of young people are not making the same use of school, or are not able to make the same use of school, because they are enrolled in different courses. The particular courses students gain access to are likely to shape their scholastic identity and identify who they are as students. This has implications for their treatment in school, for access to resources, as well as for their own perceptions and orientations. The curriculum provides a range of opportunities for study. It is important to assess the extent to which these opportunities are accessible to different groups of young people.

This chapter looks at patterns of participation in the curriculum for different groups of young people. It provides a breakdown of participation by gender, socioeconomic status, ethnicity, school type and early school achievement. These are looked at in turn.

GENDER DIFFERENCES

The long-term ascendancy of girls over boys in rates of school completion (about 10 per cent more girls than boys remain to Year 12) does not mean that girls outnumber boys in all parts of the curriculum. On the contrary, there is a range of courses in which boys enrol in much greater numbers. This is apparent from the comparison of percentages of course enrolments for males and females presented in Table 2. It shows that the course enrolments of males and females vary.

The subject group which stands out in terms of male enrolments is maths and the physical sciences (mathematics, advanced maths, physics, chemistry). Almost one in five boys took this combination of subjects in Year 12. Female enrolments in this group of subjects were not small relative to other subject combinations (8 per cent of all girls), but well below the rate for boys.

If maths and the physical sciences attract many boys, the combination of humanities, biological sciences and maths attract many girls. Nearly one-quarter of females enrolled in courses involving biological science, maths and humanities subjects. For example, 10.5 per cent of all females enrolled in a course combining biology, history, geography, art and maths. About 5 per cent of male candidates took this group of subjects. A further 12.8 per cent of girls took a similar combination of subjects but with a less academically demanding level of maths study, general maths, and the inclusion of health education. Seven per cent of male Year 12 students enrolled in this course.

Girls are also more likely to enrol in arts and humanities courses. About 14 per cent of girls participated in courses combining mainly arts and humanities subjects. About 4 per cent of girls took the humanities course of French, music, literature, history and geography. This was about double the rate for boys.

Table 2 Participation in the Year 12 curriculum, by gender (%)*

Subject Group	Males	Females	Total	N
ARTS AND HUMANITIES				
French,German,music,literature,history,geography	2.3	4.1	3.3	104
Art,art other,graphics,music,media studies	4.0	5.2	4.6	147
History,geography,gen. maths,humanities other,art	2.9	4.7	3.9	123
Total	**9.2**	**14.0**	**11.8**	**374**
BUSINESS STUDIES				
Maths,economics,accounting,computing	6.6	4.8	5.6	178
Economics,accounting,legal studies,gen. maths,biology,comp.	3.4	3.5	3.5	110
Total	**10.0**	**8.3**	**9.1**	**288**
BUSINESS STUDIES AND HUMANITIES				
Maths,economics,geography,history,art	3.1	3.3	3.2	102
Bus. studies,legal studies,textiles,gen. maths,biology	3.8	5.9	4.9	156
Total	**6.9**	**9.2**	**8.1**	**258**
BUSINESS STUDIES AND SCIENCES				
Maths,economics,chemistry,biology,computing	**4.8**	**4.7**	**4.7**	**151**
SCIENCES AND MATHS				
Maths, advanced maths,physics,chemistry	19.0	8.0	13.0	414
Maths,chemistry,biology,other science,computing	4.9	7.1	6.1	196
Total	**23.9**	**15.1**	**19.1**	**610**
SCIENCES AND HUMANITIES				
Maths,chemistry,literature,music,French,history,art	2.5	4.1	3.4	110
Gen. maths,biology,history,geography,health,art	7.0	12.8	10.2	323
Maths,biology,history,geography,art,LOTE	5.4	10.5	8.1	259
Total	**14.9**	**27.4**	**21.7**	**692**
HEALTH SCIENCES AND PHYSICAL EDUCATION				
Phys. ed.,home ec.,health,biology,gen. science,gen. maths	3.1	3.8	3.5	111
Maths,biology,phys. ed.,health,home ec.,legal studies	4.5	6.0	5.3	168
Health,gen. maths,general science,biology,home ec.	4.4	4.3	4.4	139
Total	**12.0**	**14.1**	**13.2**	**418**
VOCATIONAL EDUCATION AND TECHNOLOGY**				
Technical drawing,technology,gen. maths,computing	5.8	0.5	2.9	92
Agriculture,craft,technology,gen. maths,health,gen. science	5.6	0.6	2.9	91
Typing,secretarial studies,gen. maths, home ec., app. comp.	1.0	5.3	3.4	107
Maths,industrial arts,industrial technology,tech. drawing	5.9	0.8	3.1	100
Total	**18.3**	**7.2**	**12.3**	**390**
TOTAL	**100** (1455)	**100** (1726)	**100**	**3181**

* and ** see NOTES to Table 1.

Table 2 shows that there are differences in the courses that males and females undertake in Year 12. To highlight the parts of the curriculum where there are the strongest gender imbalances, it is useful to look at the differences in the ratios of enrolment rates. These are displayed in Figure 1. It is important to note that the Figure does not present rates of participation. Therefore, it is not possible to identify where most girls are enrolled or most boys (this information is provided in Table 2). Figure 1 shows the groups of subjects with the largest gender gaps, those where the rate of participation is more than 1.5 times greater for either males or females. The left panel presents the subject groups where females are over-represented and the right panel the courses where males are over-represented. The bars represent the ratios of the percentages of enrolments of males to females (right panel) and females to males (left panel). The top bar on the right hand panel, for example, was derived by dividing the male rate of enrolment (5.8 per cent) by the female rate of enrolment (0.5 per cent) to give a ratio of enrolment rates (11.6 to 1).

Clearly, males dominate the courses classified here as Vocational Education and Technology. The rate of enrolment for boys in the group of subjects comprising technical drawing, technology, general maths and computing is almost 12 times that for girls. The gaps are also large in the group comprising agriculture, craft, technology and general maths where females are nine times less likely to enrol than are boys. Boys are over-represented in the industrial technology course and in the maths and physical sciences.

Girls are most heavily over-represented in the secretarial studies course (typing, secretarial studies, general maths, home economics, catering) where their rate of enrolment is greater than that for boys by a ratio of more than five to one. Courses involving arts, humanities and biological science are also largely feminised in terms of the ratio of participation for females compared to males.

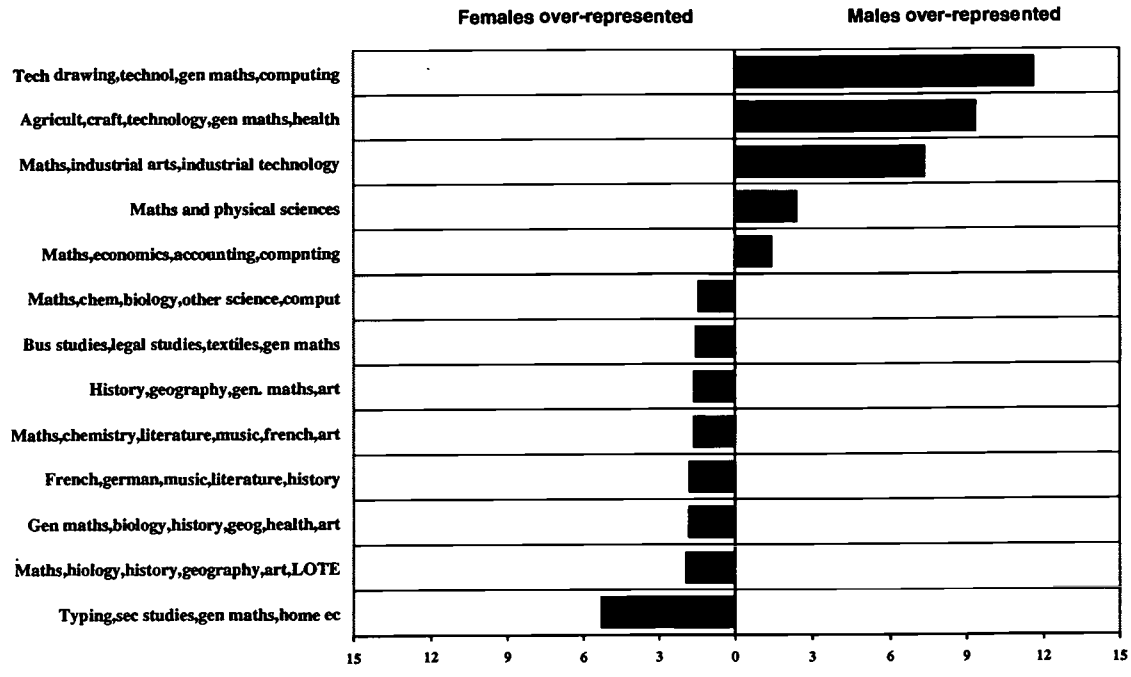

Figure 1 Gender gaps in course enrolments expressed as ratios of percentages of male and female enrolments

These figures suggest that the curriculum in Year 12 remains strongly gender segmented. This is despite the gains that girls have made in the last two decades both in terms of completing school and in terms of enrolments in some formerly male dominated subjects such as mathematics and chemistry (Teese, 1994).

SOCIOECONOMIC STATUS

Table 3 presents the socioeconomic status (SES) profiles of curriculum participation. In examining the rates it is important to remember that the figures on access to the curriculum deal with students in the final year of school (Year 12). By the time students reach this year level, there has already occurred a major process of differential selection thanks to the effects of early school leaving. The upshot of this process is that there are far fewer students from lower SES origins participating in the Year 12 curriculum compared to students from higher SES backgrounds. In the samples of students used in the current study, there was a 20 per cent gap in rates of completion between the group of high SES and low SES students (88 per cent compared to 68 per cent respectively). The effect of this process of differential selection should be to narrow differences in curriculum participation because students who remain to Year 12 are more likely to share similar perceptions, values, motivations and horizons. Many of the students who would have been most likely to occupy the least academic parts of the curriculum have already left school.

Despite the differences in rates of survival there remain social differences in curriculum participation. The figures in Table 3 show that the higher up the SES scale the more likely that students are enrolled in academic courses, particularly the groups of subjects combining university-qualifying mathematics with science subjects. Approximately 17 per cent of students from the highest SES group studied the maths and physical science group of subjects compared to about 10.5 per cent of those from the bottom SES group. High SES students were also more likely to enrol in the groups of subjects combining university-qualifying mathematics with science, arts and humanities subjects.

In descending the social scale, participation rates increase in courses combining the less academic maths with the health sciences and physical education as well as with sciences and humanities. For example, the highest level of enrolment of low SES students was in the group of subjects mixing general maths with biology, history, geography, health and art.

Of course this is not true of all students from low SES backgrounds. On the contrary, the second largest level of enrolments for this group of students is in the academically demanding course of physical sciences and maths. Students from this background are also the most likely (albeit only marginally) to enrol in the business studies course combining economics, accounting, computing and mathematics. However, more generally, students from lower SES origins tend to have the highest levels of enrolment in courses combining the lowest level of maths with health sciences and physical education, or business studies and humanities, or vocational education and technology.

Therefore, the effects of social origin do not stop with the process of early school leaving. For those from lower SES origins who continue to Year 12, the data suggest a greater likelihood of participation in the less academic courses.

Table 3 Participation in the Year 12 curriculum, by socioeconomic status (%)*

Subject Group	Socioeconomic Status				
	Lowest	Lower Middle	Upper Middle	Highest	Average
ARTS AND HUMANITIES					
French,German,music,literature,history,geography	2.5	2.9	3.5	4.6	3.3
Art,art other,graphics,music,media studies	4.5	3.8	5.4	4.8	4.5
History,geography,gen. maths,humanities other,art	5.0	3.2	4.1	3.2	3.8
Total	**12.0**	**9.9**	**13.0**	**12.6**	**11.6**
BUSINESS STUDIES					
Maths,economics,accounting,computing	6.1	5.9	4.8	6.0	5.7
Economics,accounting,legal studies,gen. maths,biology,comp.	1.9	3.7	4.7	3.8	3.5
Total	**8.0**	**9.6**	**9.5**	**9.8**	**9.2**
BUSINESS STUDIES AND HUMANITIES					
Maths,economics,geography,history,art	2.3	2.6	4.7	3.8	3.2
Bus. studies,legal studies,textiles,gen. maths,biology	5.6	6.1	3.6	3.4	4.9
Total	**7.9**	**8.7**	**8.3**	**7.2**	**8.1**
BUSINESS STUDIES AND SCIENCES					
Maths,economics,chemistry,biology,computing	**2.9**	**4.5**	**5.7**	**6.3**	**4.7**
SCIENCES AND MATHS					
Maths and physical sciences	10.5	10.4	16.5	17.1	12.9
Maths,chemistry,biology,other science,computing	4.8	6.0	7.9	6.5	6.3
Total	**15.3**	**16.4**	**24.4**	**23.6**	**19.2**
SCIENCES AND HUMANITIES					
Maths,chemistry,literature,music,French,history,art	2.5	3.4	2.9	5.4	3.5
Gen. maths,biology,history,geography,health,art	11.4	12.1	8.1	6.0	10.0
Maths,biology,history,geography,art,LOTE	6.6	7.3	9.0	11.7	8.3
Total	**20.5**	**22.8**	**20.0**	**23.1**	**21.8**
HEALTH SCIENCES AND PHYSICAL EDUCATION					
Phys. ed.,home ec.,health,biology,gen. science,gen. maths	5.5	3.6	2.3	2.4	3.5
Maths,biology,phys. ed.,health,home ec.,legal studies	5.8	5.4	5.3	4.4	5.3
Health,gen. maths,general science,biology,home ec.	6.3	5.1	2.4	2.6	4.3
Total	**17.6**	**14.1**	**10.0**	**9.4**	**13.1**
VOCATIONAL EDUCATION AND TECHNOLOGY**					
Technical drawing, technology,gen. maths,computing	4.1	3.5	2.4	0.8	2.9
Agriculture,craft,technology,gen. maths,health,gen. science	3.2	3.9	1.5	1.8	2.8
Typing,sec. Studies,gen. maths, home ec., app. comp.	4.4	3.4	2.9	2.4	3.4
Maths,industrial arts,industrial technology,tech. drawing	4.1	3.2	2.3	3.0	3.2
Total	**15.8**	**14.0**	**9.1**	**8.0**	**12.3**
TOTAL	**100**	**100**	**100**	**100**	**100**

* and ** see NOTES to Table 1.

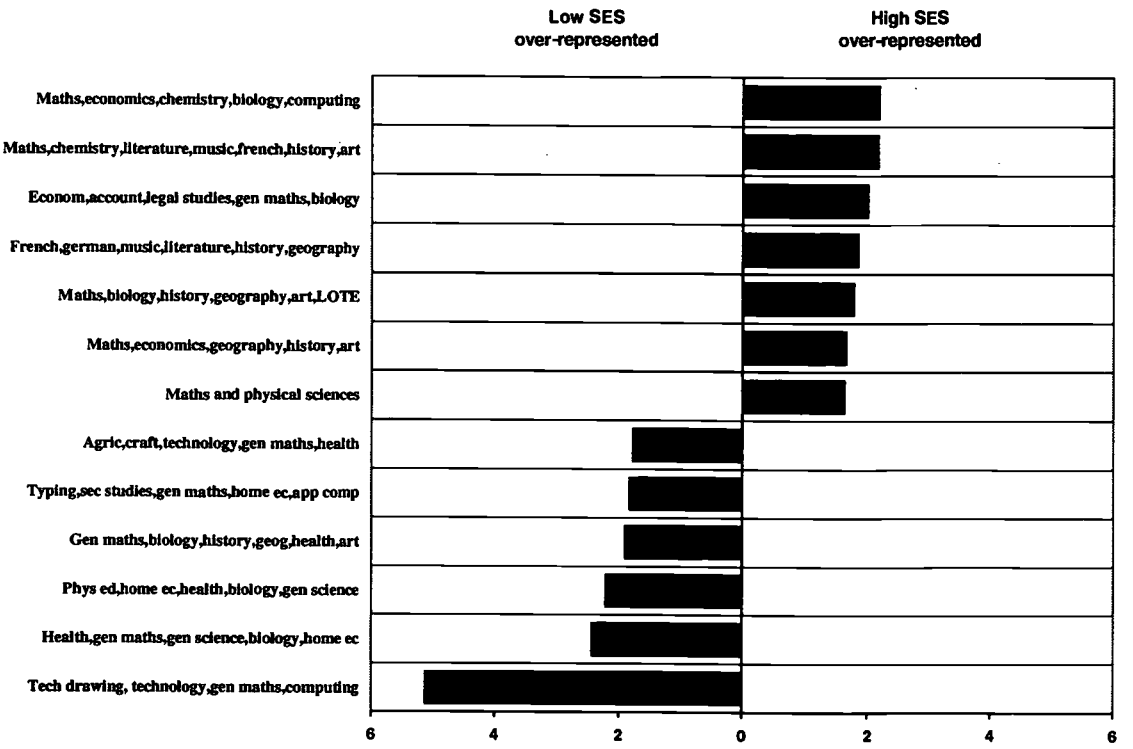

Figure 2 Socioeconomic status differences in course enrolments expressed as ratios of enrolment rates

Some of the most socially segmented parts of the curriculum are displayed in Figure 2. It shows that low SES students are heavily over-represented in the vocational and technology course of technical drawing, technology, general maths, and computing. The rate of enrolment of low SES students is over five times greater than the rate of enrolment of high SES students. Similarly, low SES students are over-represented in the courses comprising general maths (less academically-demanding level maths), health science, physical education, home economics, and biology with rates of enrolment more than double that for high SES students.

It is the more traditional academic maths, science, humanities and arts courses that are the preserve of high SES students. For example, their rate of participation in the course combining maths, chemistry, literature, music, French, history and art is more than double that for low SES Year 12 students.

SCHOOL SECTOR

Previous work has pointed to some differences in the curriculum provision of private and government schools. Teese (1989), for example, reported in a study of curriculum in private schools that this sector had the highest participation rates in the traditional humanities and arts subjects (such as literature, French, German, history, geography, economics, accounting). The results in the current study are consistent with those findings and also suggest that the strength of private school enrolments in traditional academic subjects is matched by the domination of government schools in the relatively "new" courses such as in the health sciences, technology and vocational education. The rates of curriculum participation are presented in Table 4.

Table 4 Participation in the Year 12 curriculum, by school sector (%)*

Subject Group	School Sector			
	Government	Catholic	Independent	Average*
ARTS AND HUMANITIES				
French,German,music,literature,history,geography	2.9	3.7	5.4	3.3
Art,art other,graphics,music,media studies	5.3	2.3	5.4	4.6
History,geography,gen. maths,humanities other,art	3.5	4.7	5.4	3.9
Total	**11.7**	**10.7**	**16.2**	**11.8**
BUSINESS STUDIES				
Maths,economics,accounting,computing	5.0	6.9	7.1	5.6
Economics,accounting,legal studies,gen. maths,biology,comp.	3.0	4.3	5.4	3.5
Total	**8.0**	**11.2**	**12.5**	**9.1**
BUSINESS STUDIES AND HUMANITIES				
Maths,economics,geography,history,art	2.2	4.7	6.3	3.0
Bus. studies,legal studies,textiles,gen. maths,biology	5.0	5.0	3.1	4.9
Total	**7.2**	**9.7**	**9.4**	**7.9**
BUSINESS STUDIES AND SCIENCES				
Maths,economics,chemistry,biology,computing	**4.1**	**6.2**	**6.7**	**4.7**
SCIENCES AND MATHS				
Maths and physical sciences	13.1	12.8	13.4	13.0
Maths,chemistry,biology,other science,computing	6.2	5.9	7.1	6.2
Total	**19.3**	**18.7**	**20.5**	**19.2**
SCIENCES AND HUMANITIES				
Maths,chemistry,literature,music,French,history,art	3.2	3.9	4.9	3.5
Gen. maths,biology,history,geography,health,art	10.2	11.5	5.8	10.2
Maths,biology,history,geography,art,LOTE	7.8	8.5	10.3	8.1
Total	**21.2**	**23.9**	**21.0**	**21.8**
HEALTH SCIENCES AND PHYSICAL EDUCATION				
Phys. ed.,home ec.,health,biology,gen. science,gen. maths	3.8	2.7	3.1	3.5
Maths,biology,phys. ed.,health,home ec.,legal studies	5.4	5.3	4.5	5.3
Health,gen. maths,general science,biology,home ec.	4.9	3.4	2.2	4.4
Total	**14.1**	**11.4**	**9.8**	**13.2**
VOCATIONAL EDUCATION AND TECHNOLOGY**				
Technical drawing, technology,gen. maths,computing	3.4	1.9	0.9	2.9
Agriculture,craft,technology,gen. maths,health,gen. science	3.3	2.2	0.4	2.9
Typing,sec. Studies,gen. maths, home ec., app. comp.	3.6	3.2	1.7	3.4
Maths,industrial arts,industrial technology,tech. drawing	4.1	0.9	0.9	3.1
Total	**14.4**	**8.2**	**3.9**	**12.3**
TOTAL	**100**	**100**	**100**	**100**

* and ** see NOTES to Table 1.

* The averages may be slightly different from those of Table 3 because of differences in the number of missing cases for SES data compared to the data for school attended.

The most striking feature in the distributions of enrolments is the divide between the sectors in vocational education and technology courses. Students doing the courses described here as vocational education and technology are predominantly in government schools. The four groups of subjects classified as vocational enrol over 14 per cent of government school students compared to 8 per cent of Catholic school students and only 4 per cent of students in the independent sector. Three of the vocational education and technology courses hardly register any enrolments in independent schools. Only the secretarial studies course (typing, secretarial studies, general maths, home economics and applied computing) sees enrolments in the non-Catholic private schools reach above 1 per cent.

Government schools may be the centres of vocational education and technology courses, but they lag behind the private schools in the more traditional arts and humanities, and business studies courses. This is apparent from the ratios of enrolment rates displayed in Figure 3.

Figure 3 shows that the rates of enrolment in the traditional humanities course combining French, German, music, literature, history and geography is more than double that in government schools. The rate in the course comprising maths, economics, geography, history and art is three times that in government schools.

The areas of the curriculum that the private schools tend to focus on (academic, non-vocational courses) reflect the strong focus these schools have on achieving high rates of entry to university. Government schools, alternatively, have less specialised patterns of course enrolments reflecting the need to accommodate the needs, aptitudes and orientations of a much more diverse student population.

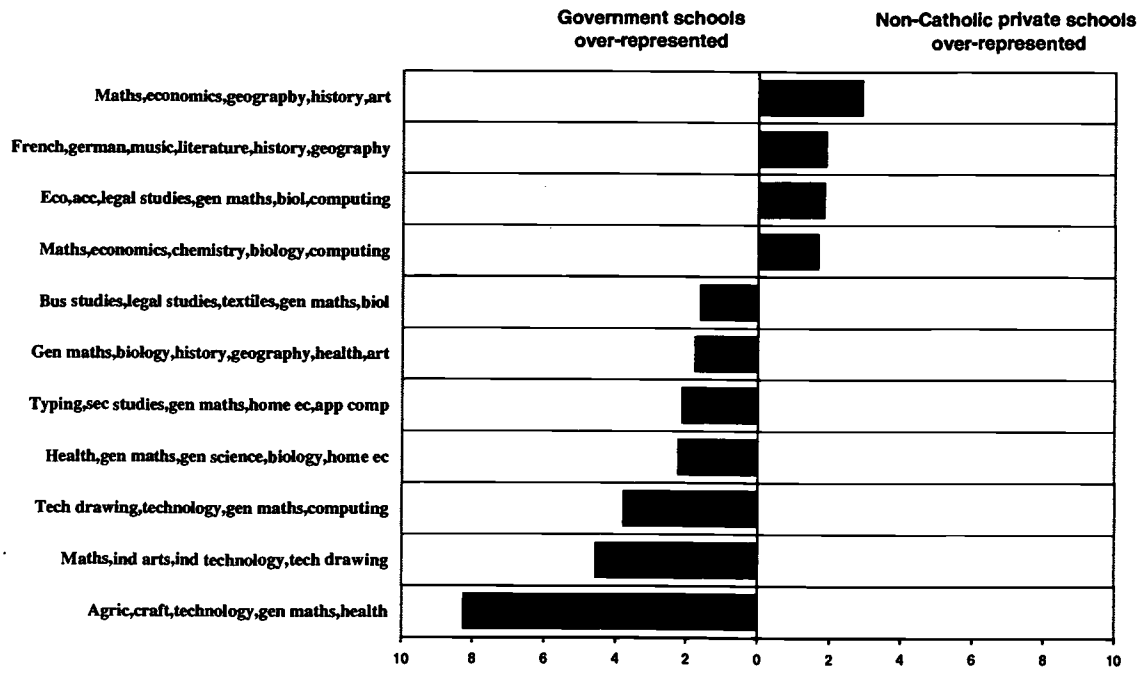

Figure 3 School sector differences in course enrolments expressed as ratios of enrolment rates

Table 5 Participation in the Year 12 curriculum, by urban or rural place of residence (%)*

Subject Group	Place of Residence		Average*
	Urban	Rural	
ARTS AND HUMANITIES			
French,German,music,literature,history,geography	3.7	2.6	3.2
Art,art other,graphics,music,media studies	4.5	4.9	4.6
History,geography,gen. maths,humanities other,art	4.0	3.6	3.9
Total	**12.2**	**11.1**	**11.7**
BUSINESS STUDIES			
Maths,economics,accounting,computing	6.1	4.2	5.6
Economics,accounting,legal studies,gen. maths,biology,comp.	3.9	2.7	3.5
Total	**10.0**	**6.9**	**9.1**
BUSINESS STUDIES AND HUMANITIES			
Maths,economics,geography,history,art	3.7	2.0	3.2
Bus. studies,legal studies,textiles,gen. maths,biology	4.9	5.0	4.9
Total	**8.6**	**7.0**	**8.1**
BUSINESS STUDIES AND SCIENCES			
Maths,economics,chemistry,biology,computing	**4.6**	**4.3**	**4.5**
SCIENCES AND MATHS			
Maths and physical sciences	12.7	13.0	12.8
Maths,chemistry,biology,other science,computing	6.2	6.0	6.1
Total	**18.9**	**19.0**	**18.9**
SCIENCES AND HUMANITIES			
Maths,chemistry,literature,music,French,history,art	3.7	3.0	3.5
Gen. maths,biology,history,geography,health,art	10.0	10.9	10.3
Maths,biology,history,geography,art,LOTE	8.5	7.7	8.2
Total	**22.2**	**21.6**	**22.0**
HEALTH SCIENCES AND PHYSICAL EDUCATION			
Phys. ed.,home ec.,health,biology,gen. science,gen. maths	3.7	3.3	3.6
Maths,biology,phys. ed.,health,home ec.,legal studies	5.2	5.2	5.2
Health,gen. maths,general science,biology,home ec.	4.0	5.3	4.4
Total	**12.9**	**13.8**	**13.2**
VOCATIONAL EDUCATION AND TECHNOLOGY**			
Technical drawing, technology,gen. maths,computing	2.2	4.7	2.9
Agriculture,craft,technology,gen. maths,health,gen. science	2.1	4.9	2.9
Typing,sec. studies,gen. maths, home ec., app. comp.	3.3	3.6	3.4
Maths,industrial arts,industrial technology,tech. drawing	3.2	3.1	3.1
Total	**10.8**	**16.3**	**12.3**
TOTAL	**100**	**100**	**100**

* and ** see NOTES to Table 1.

* The averages may be slightly different from those of Table 3 and Table 4 because of differences in the number of missing cases.

RURAL AND URBAN DIFFERENCES

Recently, in a study of curriculum provision in rural secondary schools, McKenzie, Harrold and Sturman (1996) identified some variations in curriculum participation between rural, remote and urban based students. They reported that students in rural areas were more likely than their urban counterparts to take subjects in the area of biological and other sciences, home science, and technical studies. However, the differences they discovered were relatively small. The results obtained in the current study also show only small differences in curriculum participation between students in rural schools and those in urban schools.

Table 5 reveals that across most groups of subjects there are few differences in rates of enrolments between rural and urban students. There is a modest tendency for students in urban schools to more often enrol in business studies courses. For example, there was a 2 percentage point gap in enrolments favouring urban students in the business studies course comprising maths, economics, accounting, computing. A gap favouring urban students tended to hold over other courses based on business studies.

There is also a tendency for larger numbers of rural students to participate in vocational education and technology courses. They are more likely to take courses involving agriculture, craft and technology subjects (4.9 per cent as against 2.1 per cent of urban students) and the combination comprising technical drawing, technology, general maths, and computing (4.7 per cent compared to 2.2 per cent). This pattern did not hold for the industrial arts course (maths, industrial arts, industrial technology and technical drawing), but still suggests that vocational and technical studies courses are stronger in enrolment terms in rural schools.

The relatively small differences between rural and urban students in curriculum access are in one respect surprising. Small school populations combined with lower than average retention rates have been identified as factors which limit the potential for some rural schools to offer a full or comprehensive range of subjects in the senior years of secondary school, particularly in the provision of languages, specialist sciences, humanities and the arts (eg Blackburn, 1984; Teese, McLean and Polesel, 1993). The relatively small differences in course enrolments found in the current study may be a result of the broad use of the term "rural" to categorise rural students. It covered those living in rural and remote areas as well as more densely populated provincial towns. This may have had the effect of concealing differences in curriculum access between students attending small, isolated and remote schools and those at schools which serve larger provincial centres and outlying areas.

ETHNICITY

A consistent finding in research on school outcomes is a higher school completion rate for students from non-English speaking backgrounds (Williams, 1987; Williams, Long, Carpenter & Hayden, 1993; Lamb, 1994). But young people from non-English speaking backgrounds are not only more likely to remain to Year 12 compared with students from English-speaking family origins, they tend to participate in different types of courses as well. Table 6 presents the rates of participation in the Year 12 curriculum by language background according to parents' country of birth.

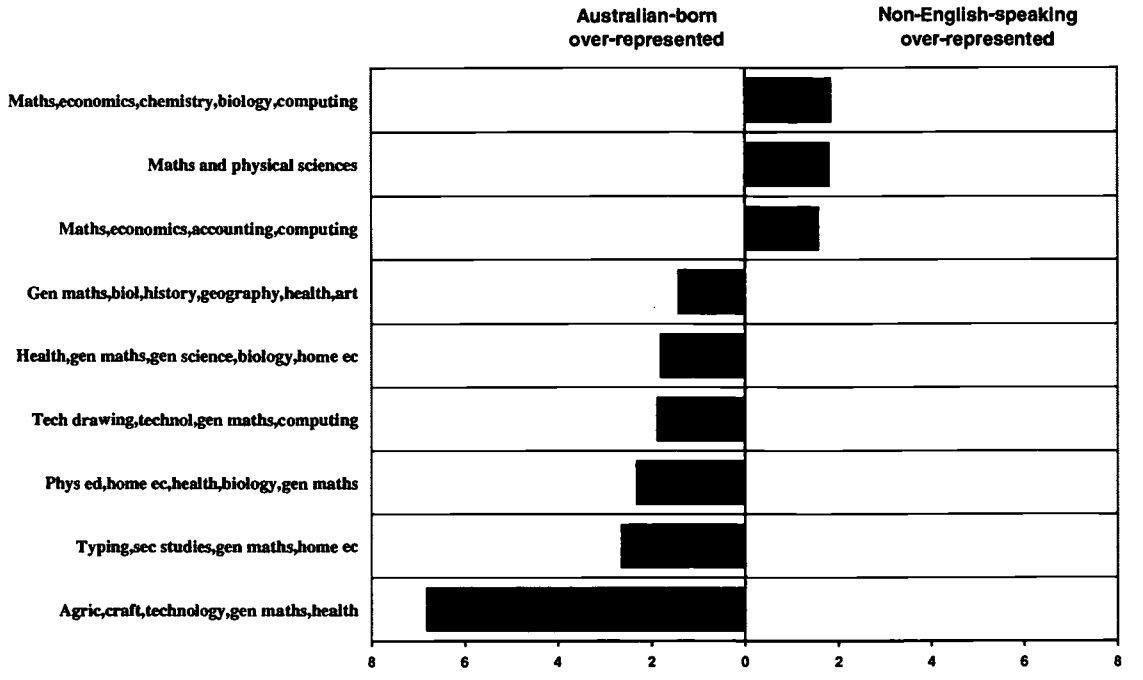

Figure 4 Language-background differences in course enrolments expressed as ratios of enrolment rates

One of the largest differences in course enrolments is related to the high rate of enrolments of students from non-English speaking backgrounds in the physical sciences and maths course. About 11 per cent of students with parents born in Australia enrolled in the group of subjects comprising physics, chemistry, maths and advanced maths. By comparison, over 20 per cent of students from a non-English speaking background took this course. The high rate of enrolment may reflect the influence of particular ethnic groups. For example, rates of enrolment in physics and advanced maths tend to be high among students from Asian and Jewish families (Teese et al., 1993). Another reason may be related to the language-skills required. It has been argued that learning and success in the physical science and maths subjects is less dependent on strong English-language skills.

The patterns of enrolments in other courses, however, do not support this view. They suggest that students from non-English speaking origins are more likely to undertake the more academic courses, particularly the business studies courses. For example, 8 per cent of students from non-English speaking backgrounds took the course comprising academic maths, economics, accounting, and computing compared to about 5 per cent of students with Australian-born parents. Moreover, as the ratios of enrolment rates in Figure 4 show, students from non-English speaking families tend to avoid the technical, vocational and non-academic courses. They are heavily under-represented in the agricultural studies group of subjects (agriculture, craft, technology, general maths, health, and general science) as well as the secretarial studies course. Therefore it may not be so much the language-skill requirements of the course that is important as much as where the courses lead.

The findings on ethnicity differences in course enrolments are in line with research which has shown that, even though the average educational attainment of parents in non-English speaking families is lower than their native English-speaking equivalents, they have higher educational aspirations for their children, on average, and place a stronger emphasis on the acquisition of university-qualifications (Miller and Volker, 1987).

Table 6 Participation in the Year 12 curriculum, by parents' country of birth (%)*

Subject Group	Parents' Country of Birth			
	Australia	Other English	Non-English Speaking	Average†
ARTS AND HUMANITIES				
French,German,music,literature,history,geography	3.0	3.9	3.7	3.4
Art,art other,graphics,music,media studies	4.4	7.6	4.5	4.6
History,geography,gen. maths,humanities other,art	3.8	6.2	3.3	4.0
Total	**11.2**	**17.7**	**11.5**	**12.0**
BUSINESS STUDIES				
Maths,economics,accounting,computing	5.1	4.4	8.0	5.6
Economics,accounting,legal studies,gen. maths,biology,comp.	3.7	3.1	2.6	3.5
Total	**8.8**	**7.5**	**10.6**	**9.1**
BUSINESS STUDIES AND HUMANITIES				
Maths,economics,geography,history,art	3.0	1.8	4.7	3.2
Bus. studies,legal studies,textiles,gen. maths,biology	4.9	5.3	4.7	4.9
Total	**7.9**	**7.1**	**9.4**	**8.1**
BUSINESS STUDIES AND SCIENCES				
Maths,economics,chemistry,biology,computing	4.2	3.1	7.7	4.7
SCIENCES AND MATHS				
Maths and physical sciences	11.2	14.7	20.1	13.0
Maths,chemistry,biology,other science,computing	6.3	3.6	6.8	6.2
Total	**17.5**	**18.3**	**26.9**	**19.2**
SCIENCES AND HUMANITIES				
Maths,chemistry,literature,music,French,history,art	3.6	2.2	3.3	3.5
Gen. maths,biology,history,geography,health,art	10.7	11.1	7.5	10.2
Maths,biology,history,geography,art,LOTE	8.4	9.3	6.5	8.1
Total	**22.7**	**22.6**	**17.3**	**21.8**
HEALTH SCIENCES AND PHYSICAL EDUCATION				
Phys. ed.,home ec.,health,biology,gen. science,gen. maths	3.7	5.8	1.6	3.5
Maths,biology,phys. ed.,health,home ec.,legal studies	5.9	2.2	3.8	5.3
Health,gen. maths,general science,biology,home ec.	4.7	5.3	2.6	4.4
Total	**14.3**	**13.3**	**8.0**	**13.2**
VOCATIONAL EDUCATION AND TECHNOLOGY **				
Technical drawing, technology,gen. maths,computing	3.2	2.2	1.7	2.9
Agriculture,craft,technology,gen. maths,health,gen. science	3.4	2.7	0.5	2.9
Typing,sec. studies,gen. maths, home ec., app. comp.	3.7	4.4	1.4	3.4
Maths,industrial arts,industrial technology,tech. drawing	3.1	0.9	4.4	3.1
Total	**13.4**	**10.2**	**8.0**	**12.3**
TOTAL	**100**	**100**	**100**	**100**

* and ** see NOTES to Table 1.

† The averages may be slightly different from those of Table 3, Table 4 and Table 5 because of differences in the number of missing cases.

EARLY SCHOOL ACHIEVEMENT

To look at the relationship between subject participation and early school achievement, information is used from tests of reading comprehension and numeracy given to respondents when they were 14 years of age. For the purposes of comparison in this report, the results were grouped to four levels representing quartiles of achievement.

There can be no doubt that the achievement of students in the early years of secondary school has a major impact on school trajectories. For one thing, low achievers are more likely to leave school early. In the current study, roughly 90 per cent of high achievers (those in the top quartile of achievement in reading comprehension and numeracy) remained at school until Year 12, compared to a rate of about 60 per cent for low achievers (those in the lowest quartile). For another thing, among those who remain to Year 12 there are large differences in courses of study based on early school achievement. The rates of participation are presented in Table 7.

In ascending the achievement scale, there is an increase in the percentages of students taking the most academic courses. Among the most able students in Year 12 (those who were in the highest quartile of achievement at age 14), more than one quarter (26.5 per cent) are enrolled in the maths and science course comprising physics, chemistry, maths and advanced maths. High achievers are also likely to enrol in the business studies course which contains university-qualifying maths, economics, accounting and computing (6.6 per cent) and the science and humanities course of maths, biology, history, geography, art and LOTE (9.8 per cent). The rates of participation in these courses are above the average.

For low achieving students (in the bottom quartile), the rate of enrolment in the maths and sciences is almost non-existent. Only 2.2 per cent took the course of maths and physical sciences and only 1.9 per cent in the other maths and science course (maths, chemistry, biology, other science and computing). But many of these students did do some science subjects. Every fifth student in the lowest quartile of achievement was enrolled in health sciences and physical education courses that often combine biology, physical education, health science and home economics.

Low achieving students also tended to gravitate towards the vocational education and technology courses. Approximately 19 per cent of students from the bottom two quartiles of achievement enrolled in a vocational education and technology course.

The differences in patterns of access to the curriculum based on achievement are graphically displayed in Figure 5.

The figure shows clearly that the maths and physical sciences and the academic maths, business studies and humanities courses are the domain of the highest achievers. They are represented in the combination of maths, physics, chemistry and advanced maths at a rate 12 times greater than the participation rate for the lowest achievers. Even in the group of academic maths and humanities courses and business studies, the enrolments favour high achievers who are represented by a rate at least three times that of low achievers.

Table 7 Participation in the Year 12 curriculum, by quartiles of achievement at age 14 (%)*+

Subject Group	Quartiles of Achievement				
	Lowest	Lower Middle	Upper Middle	Highest	Average++
ARTS AND HUMANITIES					
French,German,music,literature,history,geography	1.9	2.3	3.3	3.1	2.8
Art,art other,graphics,music,media studies	7.5	4.9	3.5	2.2	3.9
History,geography,gen. maths,humanities other,art	7.5	4.7	4.5	2.7	4.4
Total	**16.9**	**11.9**	**11.3**	**8.0**	**11.1**
BUSINESS STUDIES					
Maths,economics,accounting,computing	2.5	3.3	5.9	6.6	5.1
Economics,accounting,legal studies,gen. maths,biology,comp.	2.2	3.7	3.2	3.3	3.2
Total	**4.7**	**7.0**	**9.1**	**9.9**	**8.3**
BUSINESS STUDIES AND HUMANITIES					
Maths,economics,geography,history,art	1.3	2.3	3.5	3.5	2.9
Bus. studies,legal studies,textiles,gen. maths,biology	12.3	4.9	5.0	2.3	5.1
Total	**13.6**	**7.2**	**8.5**	**5.8**	**8.0**
BUSINESS STUDIES AND SCIENCES					
Maths,economics,chemistry,biology,computing	**2.2**	**3.1**	**4.7**	**5.9**	**4.4**
SCIENCES AND MATHS					
Maths and physical sciences	2.2	5.7	9.0	26.5	13.3
Maths,chemistry,biology,other science,computing	1.9	5.5	8.1	7.3	6.4
Total	**4.1**	**11.2**	**17.1**	**33.8**	**19.7**
SCIENCES AND HUMANITIES					
Maths,chemistry,literature,music,French,history,art	0.9	2.9	4.8	3.8	3.5
Gen. maths,biology,history,geography,health,art	12.3	15.3	11.3	6.8	10.8
Maths,biology,history,geography,art,LOTE	5.3	5.9	8.1	9.8	7.8
Total	**18.5**	**24.1**	**24.2**	**20.4**	**22.1**
HEALTH SCIENCES AND PHYSICAL EDUCATION					
Phys. ed.,home ec.,health,biology,gen. science,gen. maths	6.3	4.3	3.2	2.3	3.6
Maths,biology,phys. ed.,health,home ec.,legal studies	6.6	5.9	5.4	4.0	5.2
Health,gen. maths,general science,biology,home ec.	7.2	6.3	4.2	1.8	4.3
Total	**20.1**	**16.5**	**12.8**	**8.1**	**13.1**
VOCATIONAL EDUCATION AND TECHNOLOGY **					
Technical drawing, technology,gen. maths,computing	5.3	3.6	2.4	2.1	2.9
Agriculture,craft,technology,gen. maths,health,gen. science	4.8	4.7	3.8	1.4	3.3
Typing,sec. Studies,gen. maths, home ec., app. comp.	6.0	7.0	3.5	1.6	4.0
Maths,industrial arts,industrial technology,tech. drawing	3.8	3.7	2.6	3.0	3.1
Total	**19.9**	**19.0**	**12.3**	**8.1**	**13.3**
TOTAL	**100**	**100**	**100**	**100**	**100**

* and ** see NOTES to Table 1.

+ The 1990 sample (1,504) was excluded from the analysis because information on early school achievement was not available for this group.

++ The averages may be slightly different from those of Table 3 to Table 6 because of differences in the number of missing cases.

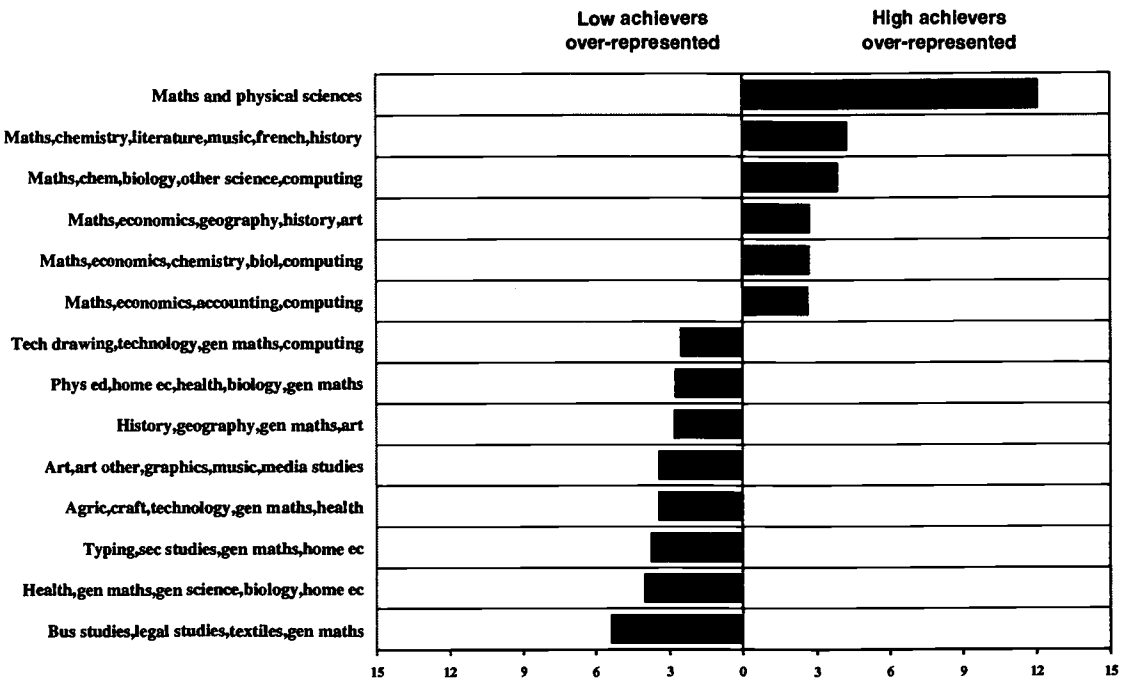

Figure 5 Differences in course enrolments expressed as ratios of percentages of enrolments: comparison of lowest and highest achievers

The health science and physical education courses, as well as vocational education and technology, are heavily over-represented by low achievers. For these courses the participation rate of low achievers is three times that of high achievers. Arts and humanities courses also attract low achievers. The course combining history, geography, general maths and art, and the course combining art, graphics, music and media studies, enrol low achievers at a much higher rate than high achievers.

These results suggest that the curriculum is largely segmented along early school achievement lines. Low and high achievers do not take the same courses. The implications of this are not only that there are differences in access to the Year 12 curriculum based on early school achievement (hardly a surprising finding), but that the differences may have effects on the quality of learning since there is a differential pooling (a form of segregation) of students based on their academic aptitude or prior achievement.

CONCLUSION

The results presented in this chapter suggest that there are major differences in participation in the Year 12 curriculum based on gender, social background, early school achievement, ethnicity and school sector. In one respect, differences in patterns of participation across the curriculum for different groups of young people could be viewed as a measure of how successful schools are in accommodating a diverse student population. In another more telling respect, though, they are a measure of failure if schools are delivering a curriculum which entrenches social and gender differences by accommodating students in different parts of the curriculum which have unequal value. This dilemma highlights the difficult task that Australia's schools face in extending the postcompulsory years to all young people while recognising differences in interests,

motivations and needs. It is likely to become an even greater challenge for school administrators and teachers if the income support policies recently introduced by the Commonwealth government lead to increased school enrolments of those who previously were likely to be early school leavers.

3

Curriculum Participation and Post-School Education and Training

The main concern with differences in patterns of curriculum participation in the senior school years is if they lead to differences in post-school outcomes. Outcomes can be measured across a range of activities including further education and training and experiences in the labour market. Labour market experiences will be examined in the next chapter. The current chapter presents information on post-school education and training. It aims to document patterns of participation in higher education and in vocational education and training as well as provide estimates of the numbers who do not participate in any further education or training. The key focus is on establishing whether or not the education and training activities of young people when they leave school vary depending on the courses they had taken in Year 12.

The chapter begins by presenting some of the broad patterns of participation, looking in some detail at entry to higher education, and participation in vocational education and training (VET). It goes on to discuss some findings from an analysis examining the contribution curriculum access makes to participation in further education and training, after controlling for other background factors. The conclusion brings the findings together to consider the relevance of curriculum access to the education and training careers of young people.

POST-SCHOOL EDUCATION AND TRAINING

The post-school education and training activities of former Year 12 students to age 19 are presented in Table 8. The table provides details on the percentage of students who, by age 19, had entered higher education, vocational education and training (apprenticeship, traineeship or other TAFE), or other post-school education, and those who had not. By this age some students will have had both higher education and VET experiences so some students will be represented in more than one post-secondary education or training category. This means that the totals may add to greater than 100.

No further education or training

Table 8 shows that there are clear differences in post-secondary education and training outcomes depending upon curriculum participation in senior secondary school. One of the most striking features involves those who have not undertaken any further education or training by age 19.

Over one-half of Year 12 students enrolled in the group of subjects comprising physical education, home economics, health, biology, and general maths did not take part in any further education or training by age 19. This was generally indicative of students undertaking any of the health sciences and physical education courses or the vocational education and technology courses not involving university-qualifying mathematics. More than a third of students in these types of courses did not enter any form of further education or training. The same was true of those in arts and humanities courses.

Table 8 Participation in post-school education and training to age 19, by Year 12 curriculum group (%)

Curriculum Group	Higher Education	Vocational Education and Training			All VET	Other education	No further education or training
		Apprenticeship	Traineeship	Other TAFE			
ARTS AND HUMANITIES							
French, German, Music, Literature, History, Geography	38.7	1.1	6.5	19.4	22.1	5.4	34.4
Art, Art Other, Graphics, Music, Media Studies	17.1	7.1	3.6	20.7	29.3	13.6	41.4
History, Geography, General Maths, Humanities Other, Art	23.9	3.7	5.5	20.2	26.0	15.6	35.8
BUSINESS STUDIES							
Maths, Economics, Accounting, Computing	60.5	4.8	2.4	16.8	22.5	4.2	17.4
Economics, Accounting, Legal Studies, Textiles, General Maths, Biology, Computing	42.9	3.1	3.1	16.3	20.0	9.2	27.6
BUSINESS STUDIES AND HUMANITIES							
Maths, Economics, Geography, History, Art	43.8	2.1	7.3	16.7	23.5	12.5	25.0
Business Studies, Legal Studies, Textiles, General Maths, Biology	19.0	5.6	9.2	13.4	25.6	8.5	46.5
BUSINESS STUDIES AND SCIENCES							
Maths, Economics, Chemistry, Biology, Computing	59.6	2.1	5.7	12.8	19.2	5.0	17.0
SCIENCES AND MATHS							
Maths, Advanced maths, Physics and Chemistry	76.8	4.3	2.5	8.6	13.8	2.0	9.8
Maths, Chemistry, Biology, Other Science, Computing	63.2	5.5	3.9	11.0	18.4	4.4	15.9
SCIENCES AND HUMANITIES							
Maths, Chemistry, Literature, Music, French, History, Art.	50.5	3.7	5.6	15.0	22.7	2.8	24.3
General Maths, Biology, History, Geography, Health, Art	17.6	4.0	7.0	23.3	30.0	11.0	41.2
Maths, Biology, History, Geography, Art, LOTE	46.8	4.2	3.4	11.8	16.6	7.6	30.8

Table 8 (Cont.) **Participation in post-school education and training to age 19, by Year 12 curriculum group (%)**

Curriculum Group	Higher Education	Vocational Education and Training			All VET	Other education	No further education or training
		Apprenticeship	Traineeship	Other TAFE			
HEALTH SCIENCES AND PHYSICAL EDUCATION							
Physical Education, Home Economics, Health,Biology,Gen. science,Gen. maths	16.2	6.7	7.6	11.4	24.3	9.5	55.2
Maths, Biology, Physical Educ., Health, Home Econ., Legal Studies	31.2	8.4	5.2	16.2	27.4	10.4	31.8
Health, General Maths, General Science, Biology, Home Economics	13.9	8.5	12.3	27.7	41.7	12.3	34.6
VOCATIONAL EDUCATION AND TECHNOLOGY							
Technical Drawing, Technology, General Maths, Computing	3.6	25.3	4.8	14.5	37.0	8.4	51.8
Agriculture, Craft, Technology, General Maths, Health, General Science	7.3	20.7	12.2	12.2	39.6	4.9	43.9
Typing, Secretarial Studies, General Maths, Home Economics, Applied Computing	7.8	8.8	10.8	17.7	34.6	12.8	46.1
Maths, Industrial Arts, Industrial Technology, Technical Drawing	17.6	17.6	8.8	17.6	36.0	7.7	37.4

SOURCE: Tabulations from *Australian Youth Survey* based on the 1990-1994 16 year-old samples and follow-up surveys (unweighted N=6,052; weighted N=1,189,846).

Compare this with those doing a science and maths course or those enrolled in some of the business studies streams. Nine in every ten students doing the combination of maths, advanced maths, physics and chemistry participated in higher education or vocational education and training by age 19. The business studies courses (eg maths, economics, accounting, computing) generally were also pathways to some form of post-school education and training. One exception was for those enrolled in the group of subjects comprising business studies, legal studies, textiles, general maths and biology with almost one half of these students not participating in post-school education and training.

Entry to Higher Education

The percentage of young people entering higher education differs considerably according to which parts of the curriculum young people access in Year 12. Notably, those with a 'science and maths' background are much more likely to enter higher education than are those from other curriculum groupings. Over three-quarters of Year 12 completers who studied 'maths, advanced maths, physics and chemistry' entered higher education by the age of 19. Similarly, those who undertook the subject combination of 'maths, chemistry, biology, other science and computing' were likely to enter higher education, with over 60 per cent doing so.

Some of the 'business studies' courses also work as gateways to university. Almost six in ten students doing the business studies and science course (maths, economics, chemistry, biology and computing) entered university by age 19. This was the same rate as those doing the combination of economics, maths, accounting and computing.

Not all business studies courses work this way though. The Year 12 students who took the business studies combination of business studies, legal studies, textiles, general maths and biology were not likely to go on to higher education — less than one in five did so by age 19.

'Sciences and humanities' subjects, which are popular with girls, are also pathways to higher education. Over a quarter of girls take subjects from this strand of courses. Roughly one in two students enrolled in a combination of Year 12 maths, chemistry, literature, music, French, history and art enter university by age 19. A similar rate of transfer exists for those doing maths, biology, history, geography, art and a language other than English (LOTE). The science and humanities subject cluster that does not lead on to university includes the less academically-demanding maths subject, general maths (general maths, biology, history, geography, health, art). Less than one in five students taking these subjects entered higher education by age 19.

What is striking about the other parts of the curriculum is the extent to which they do not lead on to university. Take the vocational education and technology courses, for example. Those doing these sorts of courses do not gain entry to university, except for those who do the industrial arts, industrial technology, maths and technical drawing combination and even then the rate is less than one in six. For the others, the rates of entry are at best less than one in 12. On these figures, it would seem that these students simply do not enter higher education.

The rates are only slightly better for most of those doing the 'health sciences and physical education' courses. For two of these courses the higher education participation rates are below 20 per cent. The one exception is the curriculum involving maths,

biology, physical education, health, home economics and legal studies. Those doing this combination of subjects in Year 12 had about a one in three rate of participation in university by age 19.

The 'arts and humanities' courses have higher rates again, though it depends on the actual course. Those doing the foreign languages (French, German) with literature, history and geography entered higher education at a rate better than one in three. For the other two courses, the rates were below 25 per cent.

Vocational Education and Training

Students entering vocational education and training by age 19 have often taken subject combinations in senior secondary school from the 'vocational education and technology' and 'health sciences and physical education' curriculum streams. For example, over a third of all students doing a 'vocational education and technology' course in Year 12 had obtained an apprenticeship or traineeship or studied a TAFE course by age 19. This was higher than for all other curriculum areas apart from the group of subjects comprising health, general maths, general science, biology and home economics (41 per cent). Other subject combinations where more than a quarter of students have entered vocational education and training include 'art, art other, graphics, music and media studies', 'history, geography, general maths, humanities other and art', and 'general maths, biology, history, geography, health and art'.

At the same time that there are differences depending on subject group, it should be noted that, from all but four Year 12 courses, over 20 per cent of students entered some form of post-secondary vocational education and training. The highest rate of entry across all groups was 42 per cent (from the course comprising health education, general maths, general science, biology and home economics).

There may be a high level of participation across all groups, but the types of VET course young people enter when they leave school vary according to senior school study. Senior secondary curriculum groupings from which a large proportion of graduates take up an apprenticeship or traineeship are different from curriculum groups where a large proportion of students enter other TAFE courses.

With the exception of the subject combination including typing and secretarial studies, between 18 and 25 per cent of students who studied a 'vocational education and technology' curriculum in senior secondary school entered an apprenticeship by age 19. The highest rate of entry to apprenticeships was among those studying from the combination 'technical drawing, technology, general maths and computing'.

The increasing importance of traineeships as a form of post-school training is indicated by the fact that in some instances rates of entry to traineeships outstripped that of apprenticeships. This was true for 50 per cent of the Year 12 courses. It tended to involve curriculum streams with lower rates of transition to VET and those where female rates of participation are high. For three Year 12 courses, the rates of participation in traineeships by age 19 involved over 10 per cent of students. For example, 12 per cent of students studying a combination of health, general maths, general science, biology and home economics had entered a traineeship by age 19. The same rate was achieved among those who studied a combination of agriculture, craft, technology, general maths, health and general science.

Participation in other TAFE courses is related to Year 12 course of study. While over 10 per cent of students from all but one of the Year 12 courses enter a TAFE course, the rates vary considerably. The highest rate of entry was achieved by those doing a combination of health, general maths, general science, biology and home economics in Year 12 (28 per cent). Approximately one in five students entered TAFE from the 'arts and humanities' courses. The lowest rates of entry were recorded by those in the 'sciences and maths' courses (8.6 per cent for those having done a combination of maths, advanced maths, physics and chemistry in Year 12).

These results suggest that while the study of vocational education and technology subjects in school is related to high rates of post-school VET participation, the participation is, relatively speaking, achieved through access to apprenticeships and traineeships rather than other TAFE courses. By comparison, entry to non-apprenticeship TAFE courses is much stronger among those studying 'arts and humanities' and 'science and humanities' subjects in school, for whom apprenticeships and traineeships figure more marginally.

Other Education

The other education category includes courses or training provided in business colleges and by other private education providers such as secretarial colleges. Hence, it is not surprising that a relatively high proportion of those who studied the secretarial studies course in Year 12 (typing, secretarial studies, general maths, home economics and applied computing) participated in studies in this sector (12.8 per cent).

STUDENT BACKGROUND, CURRICULUM ACCESS AND POST-SCHOOL EDUCATION AND TRAINING

One interpretation of the results presented above is that the curriculum is made up of a set of places that have unequal value when it comes to gaining entry to university or participating in other forms of post-school education and training. According to this view, the curriculum is highly structured and future opportunities are linked to where young people are located in the structure. Certainly, it would seem that different parts of the curriculum are linked to different destinations. This can be displayed pictorially. Figure 6 displays the patterns of relationships between the Year 12 curriculum and participation in further education and training. It shows which parts of the curriculum tend to act as roads to university, which tend to lead on to vocational education and training and which are associated with no further education or training.

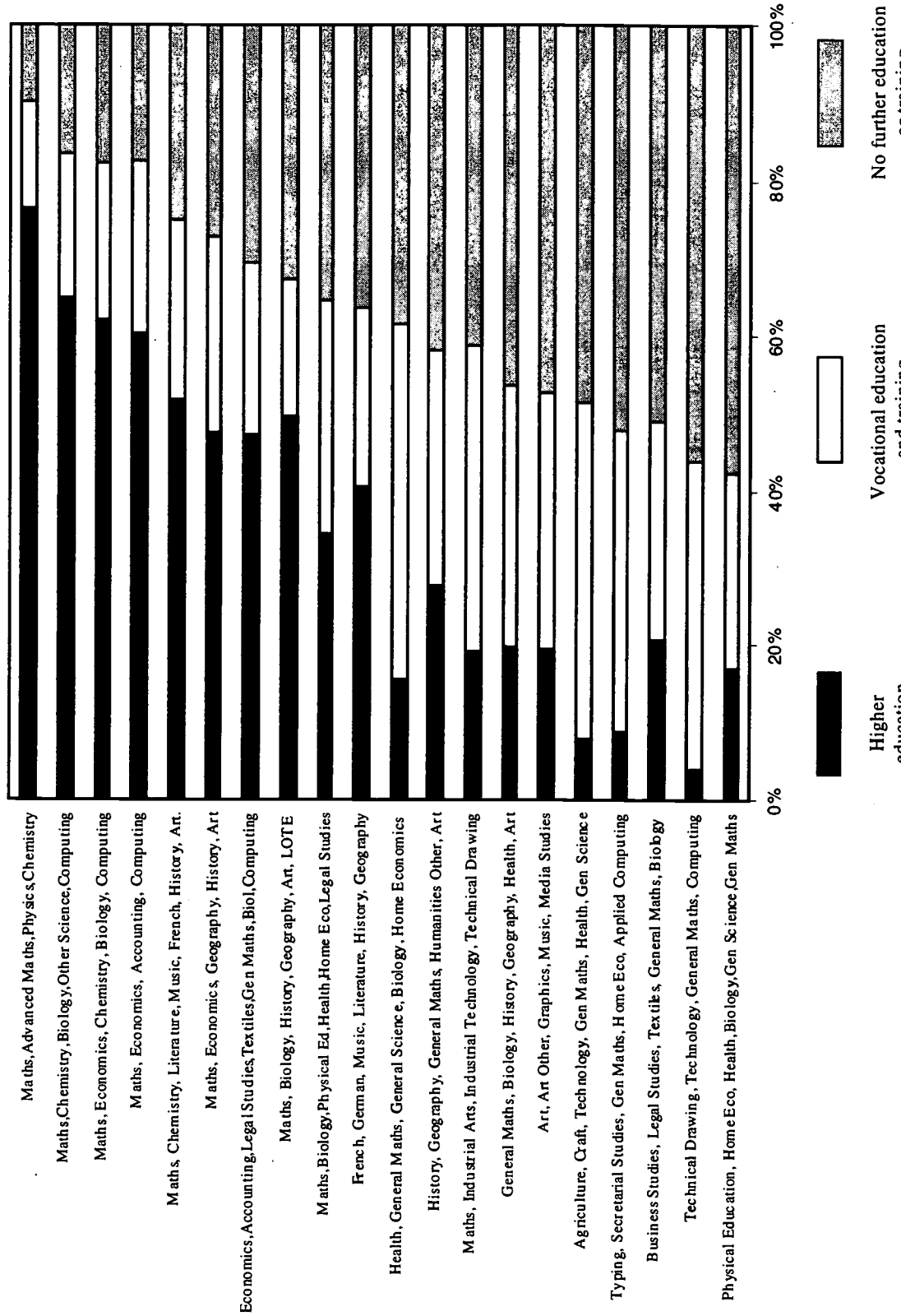

Figure 6 Participation in post-school education and training by age 19, by Year 12 study

The importance of the patterns of relationships is that, based on the results of the previous chapter, the parts of the curriculum which are an avenue to university are those parts which tend to be dominated by students who are high achievers early in school, often from high SES backgrounds, and those from private schools. Whereas, the parts of the curriculum which tend to be associated with no further education or training are dominated by students who are low achievers at age 14, more often from low SES origins, and mainly students from government schools. It could be argued, on the basis of these patterns, that the organisation of the curriculum in the senior years is working to reinforce social, cultural and academic differences among young people. It does this by separating different groups of students and formalising pathways which lead to different post-school destinations.

But the differences in post-school education and training outcomes reported in the present chapter could be due to student factors — to the types of students enrolled in the different courses — rather than to the influence of course studied in Year 12. To look at this issue, a set of regression analyses using hierarchical linear modelling (HLM) was conducted to estimate by age 19 rates of entry to university, participation in vocational education and training and no participation in further education or training. HLM is particularly appropriate for looking at the effects of subject participation on post-school outcomes because it is able to separate the amount of variance in the outcome measures due to individual-level (level one) factors such as SES, school attended, and gender from that due to differences between courses or subjects (level two variables).[2] With this technique it is possible to estimate how much variation in the outcome variables (entry to university, participation in vocational education and training, no further education and training) is due to the effects of student factors and how much, if any, is due to factors associated with the courses of study.

As a first step, a fully unconditional model (no level one or two variables included) was tested. This model estimates the amount of variation in university entry rates that is due to students (level one) and the amount that is due to the course of study (level two). The results of this analysis and for the other two outcomes (participation in VET and no further education and training) are shown in Table 9. The predicted mean rates of entry to higher education and to vocational education and training as well as rates of non-participation in further education are also presented (first row of the table). The predicted rate of entry to higher education is 32 per cent, while the rate for vocational education and training is 26 per cent, and the rate of non-participation is 41 per cent.

From a comparison of the partitioning of variance, it was found that about 15 per cent of the variation in rates of entry to university was related to differences between courses rather than between individuals. This means that over and above the type of school a student attends, their social origin, gender, ethnicity and school achievement, course participation in Year 12 is a strong predictor of entry to university.

It is also an influence on whether young people participate in any forms of further education and training. Other things equal, enrolment in particular combinations of subjects significantly increases the likelihood of not participating in any forms of further education and training by age 19. About 10 per cent of the variation in rates of non-participation was due to differences between courses of study rather than between individuals.

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[2] Detailed information on multi-level modelling and its applications can be found in Bryk and Raudenbush (1992).

Table 9 **Variance in participation in post-school education and training explained by HLM models: Year 12 completers, by age 19**

	Entry to higher education	Vocational education and training	No further education and training
Estimated mean participation rate	32%	26%	41%
Student-level variance*	85%	95%	90%
Course of study-level variance*	15%	5%	10%
	Variance explained at the course of study level		
Variance	(of 15%)	(of 5%)	(of 10%)
+ student-level variables	35%	54%	41%
+ student composition of course	42%	89%	75%

The differences for vocational education and training were small (about 5 per cent), suggesting less of an effect of subject choice on participation in VET.

Table 9 also presents information on the amount of variation at the course of study level that can be explained by the student-level and the course-level variables. These are presented in the bottom half of the table.

Controlling for differences in the background characteristics of students accounted for 35 per cent of the estimated course-level differences in entry to higher education (i.e. 35 per cent of the 15 per cent of variation at the course of study level). Similarly, the inclusion of the level one predictors accounted for 54 per cent of the estimated course-level variation in rates of participation in vocational education and training. The estimated variation in rates of non-participation in further education and training accounted for by the level one predictors was 41 per cent.

Adding the student composition variables increased the variance explained in entry to higher education at the course of study level to 42 per cent. For entry to vocational education the increase was from 54 per cent to 89 per cent, and for non-participation in further education the variance explained increased from 41 per cent to 75 per cent.

Having controlled for the effects of background characteristics and student composition, there remain significant variations in rates of participation in further education and training. An examination of the residual files (residual variation that is unexplained) generated by the full models gives an opportunity to identify the courses that contribute most to the variations. To produce for each course what has become known in the literature as an "effect size" (Willms, 1992, p.43), the residuals are expressed as a fraction of the standard deviation of the outcome. The resulting course-effect sizes for each outcome are presented in Table A1 in Appendix 2. Effect sizes of less than 0.2 are considered quite small. Those between 0.2 and 0.5 are considered to be moderate and those over 0.5 to be reasonably large.

The results are one way of measuring the impact of Year 12 course participation on future education and training activity, after taking into account the different pupil populations that each course has. The results show that in terms of entry to higher education some courses have effect sizes which are greater than 0.5. The business

studies course comprising maths, economics, accounting and computing, for example, has a large positive effect size (0.81) suggesting that after controlling for both individual-level and course-level factors, students in this course attain a higher than expected entry rate to university. The maths and science courses also have a positive effect on the chances of participating in higher education. There are several courses for which the effects are negative. They include the vocational education and technology courses (effect sizes ranging from –0.06 to –0.48), two of the arts and humanities courses (effect sizes of –0.31 and –0.32), and a science and humanities course comprising general maths, biology, history, health, and art which had the largest negative effect size (-0.52).

For participation in post-school vocational education and training, the course with the largest positive effect size is the health and physical education course (health education, general maths, general science, biology, home economics). Courses that have lower than expected effects include a business studies course (-0.32), a business studies/humanities course (–0.39) and the vocational education and technology course comprising secretarial studies, typing, general maths, home economics and applied computing (-0.29).

The estimates suggest that Year 12 course of study influences participation in higher education and vocational education and training. It is also an influence on whether young people participate in any forms of further education or training. Other things equal, enrolment in particular parts of the curriculum (for example, some 'vocational education and technology' courses, 'health and physical education', and some 'arts and humanities' courses) increases the likelihood of not participating in any forms of further education and training to age 19, although the effect sizes are relatively small (ranging from –0.24 to 0.19).

CONCLUSION

The results presented in this chapter suggest that there are differences in post-secondary education and training outcomes depending upon curriculum participation in senior secondary school. The patterning of results is consistent with the view that the subjects students choose in the senior years of school can be influential in shaping future education and training opportunities, even after allowing for the influence of other aspects of student background.

4

Curriculum Participation and Initial Labour Market Outcomes

This chapter reports on the early labour market outcomes of young people and looks at whether or not differences in patterns of curriculum participation in the senior school years lead to differences in early labour market experiences. In the current study it was possible only to examine initial work status for school leavers, at 19 years of age.[3] This early transitional period may not be indicative of the long-term prospects for employment among young people. Research suggests that the youth labour market is characterised by considerable instability and change as young workers try to find suitable jobs (Eyland, 1986; Miller & Volker, 1987; Lamb, 1997). Yet the extent to which young people begin to engage in productive activities at an early age may be indicative of their long-term prospects for meaningful employment.

The labour market outcomes include earnings, occupation, and unemployment. Patterns are reported according to participation in the various Year 12 courses. The results for early school leavers (those who did not undertake Year 12) are included for purposes of comparison.

TRANSITION TO WORK

In this study, young people were classified into four groups based on the primary activity they were engaged in at 19 years of age: (1) those who were working full-time, (2) those who were in further education and training, either full-time or part-time, (3) those who were working part-time and not enrolled in further education or training, and (4) those who were not employed, and were either looking for work or out of the labour force. Both of the first two groups can be viewed as engaged in productive labour market-oriented activities, either working full-time or undertaking further education and training. Those in the third category are working, but they either cannot find or are not interested in working full-time. Those in the final category are either unemployed or not in the labour force. Details on the education and labour market status at age 19 are presented in Figure 7. The details, excluding those in further education and training, are presented in Figure 8 (the actual figures are provided in Table A2 in Appendix 2).

[3] Age 19 was chosen for reporting on labour market outcomes for a couple of reasons. Firstly, information on subject choice was not collected in the Australian Youth Survey prior to 1990 so only limited data is currently available to link curriculum choice with post-teenage labour market outcomes. Secondly, information on the full sample (the AYS 16 year-old cohorts for 1990 to 1994 which contain subject choice information) is available to age 19. Results for 20, 21 or 22 year-olds would be based on smaller samples with less reliable estimates.

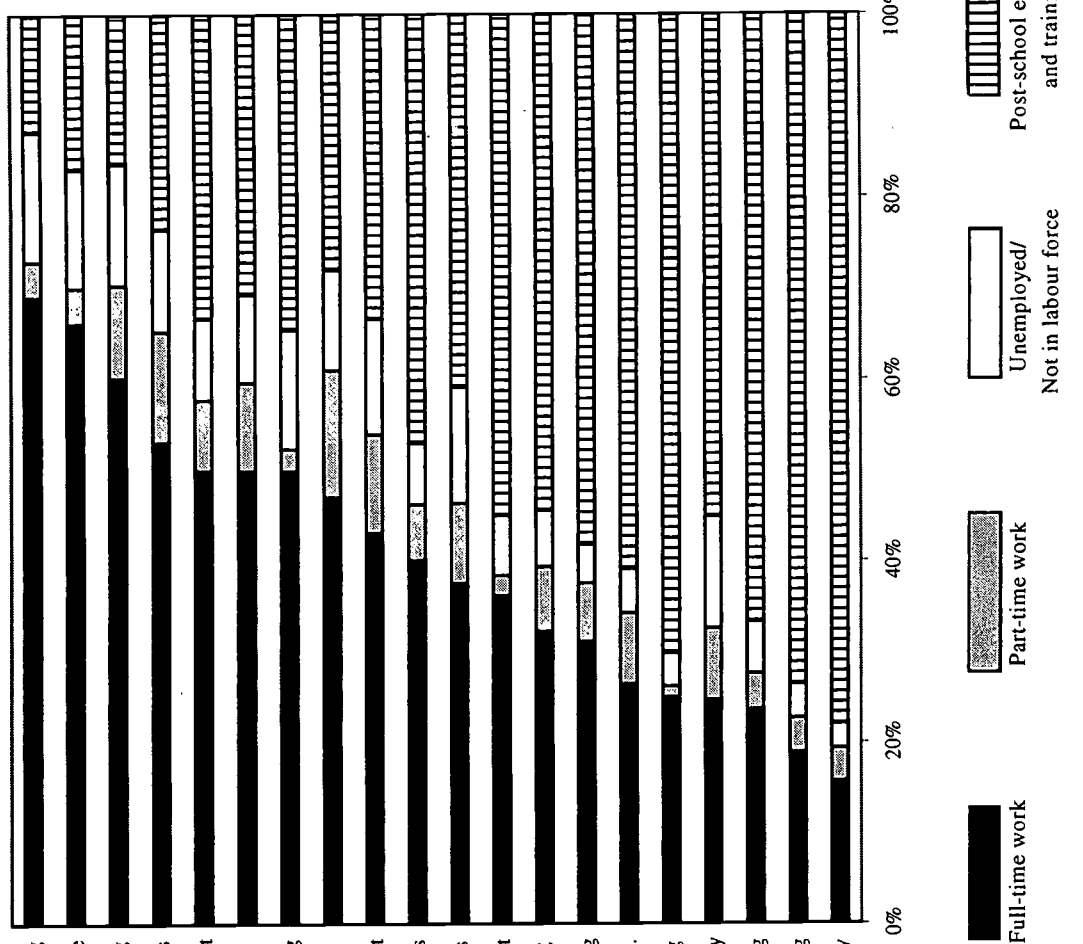

Figure 7 Education and employment status of young people at age 19, by Year 12 study (%)

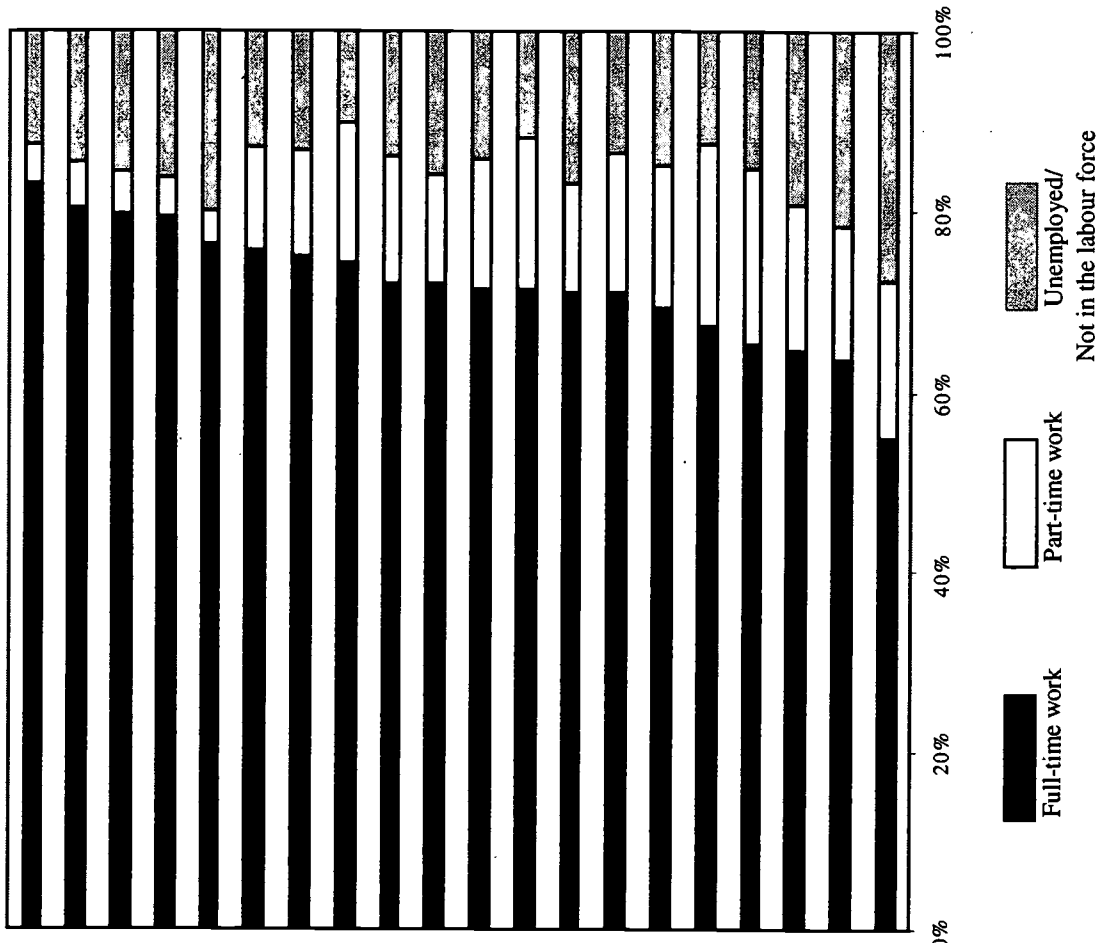

Figure 8 Employment status of young people not in education and training at age 19, by Year 12 study (%)

The data reveal that differences in the initial work status of young people are associated with the combination of subjects taken in senior secondary school. Broadly, those participating in the 'vocational education and technology' courses in Year 12 more often sought entry to the workforce than further education. Fewer than one in five were engaged in further education and training at age 19. This rate was lower than that for early school leavers (26 per cent). The rates of those in full-time work at age 19 suggest that many students doing combinations of vocational education and technology subjects were relatively successful in gaining jobs, as they had the highest rates of participation in full-time work. However, those from these courses also faced the highest risks of being unemployed or not in the labour force, at least based on the rates at age 19. It would seem that while many obtain jobs, there are also many who do not (over 20 per cent). This was also true for those from courses in 'health sciences and physical education' and some 'arts and humanities' courses. For example, over 40 per cent of those who took a course involving history, geography, general maths, and art were in full-time jobs at age 19, but a further 20 per cent were unemployed or not in the labour force. By contrast, at age 19, less than 30 per cent of those who had done the course comprising maths, economics, chemistry, biology and computing or those who studied physical sciences and maths in Year 12 were not studying or engaged in training and of these many obtained jobs.

UNEMPLOYMENT

The difficulty for school leavers who do not gain a place in further education and training in securing employment is further revealed by examining their activities over time. To do this, weekly records of activity were used to calculate percentages of time to age 19 that young people were unemployed. Those in further education and training to age 19 were excluded from the analysis. The rates for early school leavers were included for comparison.

The results, presented in Table 10, reveal that length of time unemployed varies depending on Year 12 study. The young people who spent the greatest percentage of their time unemployed — more than 50 per cent of their time — from the point of leaving school to age 19 more often had studied the arts and humanities courses and the vocational education and technology subject combinations. However, this is not uniform. The Vocational Education and Technology course combining agriculture, craft, technology, health and general science, for example, was associated with a relatively high proportion of students who did not experience any unemployment (about half) and only a small percentage who were long-term unemployed (less than 5 per cent).

The subject groups which tended to be associated with the shortest durations of unemployment largely involved the science and maths courses (over 50 per cent not experiencing any time unemployed), and the business studies and humanities courses (ranging from 40 to 50 per cent). One of the Sciences and Humanities courses (Maths, Chemistry, Literature, Music, French, History, Art) was also associated with low durations of unemployment (59 per cent).

Table 10 Percentage of time unemployed to age 19, by Year 12 study (excluding those in further education and training)

Curriculum Group	Percentage of Time to Age 19 Unemployed				
	0	1-10	11-20	21-49	50+
ARTS AND HUMANITIES					
French, German, Music, Literature, History, Geography	40.8	16.3	8.2	22.4	12.2
Art, Art Other, Graphics, Music, Media Studies	37.9	21.1	12.6	15.8	12.6
History, Geography, General Maths, Humanities Other, Art	47.4	14.1	10.3	17.9	10.3
BUSINESS STUDIES					
Maths, Economics, Accounting, Computing	50.0	21.7	8.3	8.3	11.7
Economics, Accounting, Legal Studies, Textiles, General Maths, Biology, Computing	40.0	20.0	10.9	14.5	14.5
BUSINESS STUDIES AND HUMANITIES					
Maths, Economics, Geography, History, Art	50.0	19.2	19.2	5.8	5.8
Business Studies, Legal Studies, Textiles, General Maths, Biology	45.6	19.3	12.3	14.9	7.9
BUSINESS STUDIES AND SCIENCES					
Maths, Economics, Chemistry, Biology, Computing	46.0	22.0	14.0	12.0	6.0
SCIENCES AND MATHS					
Maths, Advanced maths, Physics and Chemistry	52.5	18.6	12.7	10.2	5.9
Maths, Chemistry, Biology, Other Science, Computing	50.7	15.9	8.7	10.1	14.5
SCIENCES AND HUMANITIES					
Maths, Chemistry, Literature, Music, French, History, Art.	58.8	17.6	7.8	9.8	5.9
General Maths, Biology, History, Geography, Health, Art	40.0	23.6	7.6	19.1	9.8
Maths, Biology, History, Geography, Art, LOTE	45.0	23.7	9.9	15.3	6.1
HEALTH SCIENCES AND PHYSICAL EDUCATION					
Physical Education, Home Economics, Health, Biology, Gen. science, Gen. Maths	42.4	22.4	11.8	16.5	7.1
Maths, Biology, Physical Education, Health, Home Economics, Legal Studies	48.4	15.1	11.8	17.2	7.5
Health, General Maths, General Science, Biology, Home Economics	41.0	24.0	11.0	12.0	12.0
VOCATIONAL EDUCATION AND TECHNOLOGY					
Technical Drawing, Technology, General Maths, Computing	44.9	11.5	12.8	16.7	14.1
Agriculture, Craft, Technology, General Maths, Health, Gen Science	51.4	21.4	10.0	12.9	4.3
Typing, Secretarial Studies, General Maths, Home Economics, Applied Computing	42.4	20.7	13.0	13.0	10.9
Maths, Industrial Arts, Industrial Technology, Technical Drawing	36.8	22.1	11.8	17.6	11.8
Early school leavers	30.1	20.5	13.8	14.7	20.9

As well as duration of unemployment, it is worth examining the number of unemployment spells. Higher numbers of unemployment spells suggest greater difficulty in securing stable employment. The results of this analysis suggest that the likelihood of having a number of periods of unemployment to age 19 is influenced by the combination of subjects taken in senior secondary school (as well as by leaving school prior to completing Year 12). The results are provided in Table 11.

There are sizeable differences among Year 12 graduates, depending on their course of study in school. For example, one in four students who studied a combination of technical drawing, technology, general maths, and computing in Year 12 experienced three or more spells of unemployment by age 19. Contrast this with the students who studied maths, economics, geography, history and art, or a combination of maths, economics, accounting and computing. Only about one in 20 students studying combinations of these subjects had three or more spells of unemployment. Most had no spells.

In short, both number of unemployment spells and duration of unemployment varied substantially depending on the courses studied in Year 12.

MARGINALISED TRANSITIONS

Unemployment spells are often part of a 'milling and churning' phenomenon in the experiences of young people as they make the transition from school to work. They often occur in conjunction with short periods of employment or more often part-time employment. Working part-time may be the preference of young adults engaged in education and training. However, this is not usually so for young people who are not studying full-time. Rather, for these young adults being employed part-time may suggest an inability to secure full-time employment (Dusseldorp Skills Forum, 1998). To examine patterns of marginalisation, figures were derived for those at age 19 who were not in full-time work and who were not engaged in further education or training. The figures included those who were unemployed, those who were in part-time work and not doing any further study or training, and those who were not in the labour force and not studying. This definition reflects the concern about the numbers of young people who are not able to secure stable full-time jobs and move in and out of periods of part-time work and unemployment or periods out of the labour force altogether without participation in further education or training.

Based on this definition, there are large differences in the numbers of young people in a marginal status (see Table 12). For example, those who do a Year 12 course based on arts and humanities subjects. Over 20 per cent were not employed full-time and not engaged in further education and training at age 19. Similarly, for those taking the business studies and humanities course comprising business studies, legal studies, textiles, general maths and biology, the rate was over 25 per cent.

By contrast, only 5 per cent of students who had taken maths, economics, accounting and computing were unemployed, not in the labour force or in part-time work. The rates were also low for those in the science and maths courses.

Table 11 Percentage distribution of spells of unemployment to age 19, by Year 12 study (excluding those in further education and training)

Curriculum Group	Spells of Unemployment				
	0	1	2	3	4+
ARTS AND HUMANITIES					
French, German, Music, Literature, History, Geography	68.0	7.8	10.7	9.7	3.9
Art, Art Other, Graphics, Music, Media Studies	52.0	20.6	9.6	9.6	8.2
History, Geography, General Maths, Humanities Other, Art	58.2	14.8	13.1	5.7	8.2
BUSINESS STUDIES					
Maths, Economics, Accounting, Computing	76.7	11.4	6.8	1.7	3.4
Economics, Accounting, Legal Studies, Textiles, General Maths, Biology, Computing	64.8	14.8	12.0	5.6	2.8
BUSINESS STUDIES AND HUMANITIES					
Maths, Economics, Geography, History, Art	66.7	19.6	7.8	2.0	3.9
Business Studies, Legal Studies, Textiles, General Maths, Biology	50.0	22.4	16.0	5.8	5.8
BUSINESS STUDIES AND SCIENCES					
Maths, Economics, Chemistry, Biology, Computing	75.5	9.3	8.6	4.6	2.0
SCIENCES AND MATHS					
Maths, Advanced maths, Physics and Chemistry	83.0	8.0	5.1	2.9	1.0
Maths, Chemistry, Biology, Other Science, Computing	78.5	8.7	6.7	3.1	3.1
SCIENCES AND HUMANITIES					
Maths, Chemistry, Literature, Music, French, History, Art.	72.7	12.7	6.4	6.4	1.8
General Maths, Biology, History, Geography, Health, Art	52.5	19.6	15.8	4.7	7.5
Maths, Biology, History, Geography, Art, LOTE	65.6	14.1	12.5	4.3	3.5
HEALTH SCIENCES AND PHYSICAL EDUCATION					
Physical Education, Home Economics, Health, Biology, Gen. science, Gen. Maths	43.2	27.9	9.9	8.1	10.8
Maths, Biology, Physical Education, Health, Home Economics, Legal Studies	61.9	22.6	7.7	4.2	3.6
Health, General Maths, General Science, Biology, Home Economics	46.4	26.1	8.0	8.7	10.9
VOCATIONAL EDUCATION AND TECHNOLOGY					
Technical Drawing, Technology, General Maths, Computing	44.6	18.5	12.0	10.9	14.1
Agriculture, Craft, Technology, General Maths, Health, General Science	55.7	19.3	12.5	6.8	5.7
Typing, Secretarial Studies, General Maths, Home Economics, Applied Computing	44.9	18.7	16.8	7.5	12.2
Maths, Industrial Arts, Industrial Technology, Technical Drawing	51.0	19.0	15.0	8.0	7.0
Early school leavers	25.7	26.9	17.7	13.6	16.0

Table 12 Percentages of young people not employed full-time and not enrolled in post-school education and training at age 19, by Year 12 course enrolment*

Curriculum Group	Per Cent
ARTS AND HUMANITIES	
French, German, Music, Literature, History, Geography	20.2
Art, Art Other, Graphics, Music, Media Studies	21.6
History, Geography, General Maths, Humanities Other, Art	23.5
BUSINESS STUDIES	
Maths, Economics, Accounting, Computing	5.0
Economics, Accounting, Legal Studies, Textiles, General Maths, Biology, Computing	10.8
BUSINESS STUDIES AND HUMANITIES	
Maths, Economics, Geography, History, Art	8.8
Business Studies, Legal Studies, Textiles, General Maths, Biology	25.0
BUSINESS STUDIES AND SCIENCES	
Maths, Economics, Chemistry, Biology, Computing	7.6
SCIENCES AND MATHS	
Maths, Advanced maths, Physics and Chemistry	6.3
Maths, Chemistry, Biology, Other Science, Computing	9.6
SCIENCES AND HUMANITIES	
Maths, Chemistry, Literature, Music, French, History, Art.	12.7
General Maths, Biology, History, Geography, Health, Art	16.7
Maths, Biology, History, Geography, Art, LOTE	13.3
HEALTH SCIENCES AND PHYSICAL EDUCATION	
Physical Education, Home Economics, Health, Biology, Gen. science, Gen. maths	23.5
Maths, Biology, Physical Education, Health, Home Economics, Legal Studies	12.9
Health, General Maths, General Science, Biology, Home Economics	19.3
VOCATIONAL EDUCATION AND TECHNOLOGY	
Technical Drawing, Technology, General Maths, Computing	18.0
Agriculture, Craft, Technology, General Maths, Health, General Science	16.9
Typing, Secretarial Studies, General Maths, Home Economics, Applied Computing	23.5
Maths, Industrial Arts, Industrial Technology, Technical Drawing	15.5
EARLY SCHOOL LEAVERS:	
Left school prior to completing to Year 12	23.4

* Those included in the percentages were those who were either unemployed, in part-time work and not enrolled in any education or training, or not in the labour force and not studying.

In summary, the transition from school to stable and secure employment varies depending on the subjects young people study in senior secondary school. The figures suggest that in this early transition period some young people spend periods of time on the margins of the workforce — unemployed, or in part-time jobs unable to find secure full-time work, or even not in the labour force at all — and this, in part, is related to subject choice in senior school.

EARNINGS

It is important to consider not only the amount of time that young people spend in productive activities, but the quality of those activities. The quality of employment can be gauged in a number of ways. In this study, there is an examination of the types of occupations and the wages of those working full-time. Of course, the comparisons of wages are presented here tentatively. At this age, earnings are affected by youth-wage awards and by the effects of youth training allowances. These may work to suppress or distort differences. Average weekly full-time earnings are presented in Table 13. Wages are expressed in 1990 dollar terms and the average full-time weekly wage is calculated only for those in full-time work.

The earnings of early school leavers are included for purposes of comparison. It is difficult to make a meaningful interpretation of differences in the average full-time wages received by young adults who left school early and those who completed senior secondary school. Differences may be due to the payment of a 'training wage' to those who obtain apprenticeships or are engaged in some other contract of training. In addition, young adults who have just commenced their first job would be expected to receive a lower wage than a person of similar age with more experience in the work place. Therefore, it is quite likely that early school leavers who were successful in securing employment soon after leaving school would receive a higher wage than a young adult who has completed senior secondary school and has just recently entered the workplace. More meaningful comparisons between these groups can be made at later ages once some of the handicaps associated with initial entry to the workforce have been overcome.

Early school leavers who are in employment at age 19 receive, on average, a higher wage than young adults who completed senior secondary school and are in employment. This is most likely due to the higher level of work experience attained by early school leavers at this age compared with those who stayed on to complete school. Differences in the full-time wage received are unlikely to be due to differences in the relative number of early school leavers in receipt of a 'training wage', as almost 40 per cent of early school leavers in full-time employment were also engaged in education. This percentage was smaller across most curriculum groups.

For those who completed senior secondary school there were differences in the average full-time wage according to curriculum groups. Young adults who studied 'business studies and humanities' received a higher wage on average compared with other curriculum groups ($336 as against the average of $297). Young adults who had studied the subject combination of 'technical drawing, technology, general maths and computing' received the lowest average full-time wage ($258). This result may be due to the high proportion of this group in apprenticeships at age 19.

Table 13 Average weekly full-time wages at age 19, by Year 12 study ($)*

	Full-time Employees
EARLY SCHOOL LEAVERS:	
Left school prior to completing to Year 12	$312
COMPLETED YEAR 12:	$297
By **CURRICULUM GROUP**	
ARTS AND HUMANITIES	
French, German, Music, Literature, History, Geography	$293
Art, Art Other, Graphics, Music, Media Studies	$275
History, Geography, General Maths, Humanities Other, Art	$300
BUSINESS STUDIES	
Maths, Economics, Accounting, Computing	$294
Economics, Accounting, Legal Studies, Textiles, General Maths, Biology, Computing	$299
BUSINESS STUDIES AND HUMANITIES	
Maths, Economics, Geography, History, Art	$336
Business Studies, Legal Studies, Textiles, General Maths, Biology	$289
BUSINESS STUDIES AND SCIENCES	
Maths, Economics, Chemistry, Biology, Computing	$331
SCIENCES AND MATHS	
Maths, Advanced maths, Physics and Chemistry	$299
Maths, Chemistry, Biology, Other Science, Computing	$295
SCIENCES AND HUMANITIES	
Maths, Chemistry, Literature, Music, French, History, Art.	$290
General Maths, Biology, History, Geography, Health, Art	$296
Maths, Biology, History, Geography, Art, LOTE	$302
HEALTH SCIENCES AND PHYSICAL EDUCATION	
Physical Education, Home Economics, Health Biology, Gen. science, Gen. maths	$320
Maths, Biology, Physical Education, Health, Home Economics, Legal Studies	$295
Health, General Maths, General Science, Biology, Home Economics	$291
VOCATIONAL EDUCATION AND TECHNOLOGY	
Technical Drawing, Technology, General Maths, Computing	$258
Agriculture, Craft, Technology, General Maths, Health, General Science	$314
Typing, Secretarial Studies, General Maths, Home Economics, Applied Computing	$287
Maths, Industrial Arts, Industrial Technology, Technical Drawing	$300

* The earnings are expressed in 1990 dollar terms.

SOURCE: Tabulations from *Australian Youth Survey* based on the 1990-1994 16 year-old samples and follow-up surveys (unweighted N=6,052; weighted N=1,189,846).

OCCUPATIONS

At this early stage in their careers with many Year 12 graduates still in higher education or in vocational education and training, the types of full-time jobs on offer to teenagers are likely not to vary greatly. Even so, there are differences in the occupations in which young adults are engaged in their early working life that are linked to the combination of subjects studied during senior secondary school.

A high proportion of young people are employed in the retail trade sector and the accommodation, cafes and restaurants industry sector. In 1997, 40 per cent of the working age population engaged in the retail sector were aged between 15 and 24 and one in three of the working age population employed in the accommodation, cafes and restaurants industry sector were in this age group (ABS, 1997). Therefore it is not surprising that the dominant occupational category for youth at age 19 is the 'salespersons and personal service workers' occupational category. Table 14 shows that between one-third and one-half of young people who did health science and physical education combinations of Year 12 subjects were employed in this type of occupation. The rates were also high for those from 'arts and humanities' and 'science and humanities' backgrounds (over one-third).

This pattern did not hold over all courses, however. For those who did 'vocational education and technology' subject combinations, with the exception of those who undertook secretarial studies, the 'salespersons and personal service workers' employed less than one in four. More important to these groups were occupations in the skilled trades area and in labouring and related work. For example, for those who had studied 'technical drawing, technology, general maths, computing' subjects over 40 per cent were employed in the skilled trades area. The dominant occupational category was 'labourer and related worker' for those employed at age 19 who studied 'maths, industrial arts, industrial technology and technical drawing' (30 per cent).

Many young people who had studied a 'business studies' curriculum or a 'business studies and humanities' curriculum, were employed in clerical work. For example, 42 per cent of those who had taken the combination of maths, economics, geography, history and art and who were in full-time work were employed in clerical occupations at age 19. Similarly, 35 per cent of those employed full-time who had taken a combination of maths, accounting, economics and computing were in clerical jobs at age 19.

CONCLUSION

The subjects studied in senior secondary school have an influence on early labour market experiences. The experiences tended to be quite positive for young adults who studied sciences and maths or took a 'business studies and humanities' curriculum, and for those who studied the vocational education curriculum involving agriculture. These young people were less likely to experience extended periods of unemployment compared to others. They also tended to receive higher earnings.

In contrast, young people who entered the labour market after studying an 'arts and humanities' curriculum, without studying science or maths, experienced some difficulty in obtaining secure and stable jobs and in avoiding extended periods of unemployment. Similar outcomes were experienced by those who had studied the male dominated technology-based vocational education courses, apart from those doing the agriculture course. Longer and more frequent spells of unemployment were a more common

experience up to age 19 for young people who took a typing-secretarial or a physical education curriculum in senior secondary school. The analysis of Chapter 2 found that these subject groupings were over-represented with low SES students. The quality of jobs they held at age 19 and their experiences in finding jobs suggested that they more often experienced disadvantage in the transition to work.

Table 14 Occupations of 19 year-olds in full-time work, by type of Year 12 study (%)

	Technical/ Professional	Skilled Trades	Clerical	Sales and Service	Plant/machine Operators	Labourer and Related Workers	Percentage in Occupations
EARLY SCHOOL LEAVERS:							
Left school prior to completing to Year 12	5.5	29.5	12.7	25.4	5.9	21.1	41.0
COMPLETED YEAR 12:	7.8	15.0	20.5	34.7	3.9	18.1	42.3
By **CURRICULUM GROUP**							
ARTS AND HUMANITIES							
French, German, Music, Literature, History, Geography	6.5	6.5	25.8	38.7	0.0	22.6	29.8
Art, Art Other, Graphics, Music, Media Studies	10.0	21.7	13.3	35.0	1.7	18.3	40.8
History, Geography, General Maths, Humanities Other, Art	7.0	8.8	19.3	47.4	1.8	15.8	46.3
BUSINESS STUDIES							
Maths, Economics, Accounting, Computing	9.3	14.0	34.9	25.6	0.0	16.3	24.2
Economics, Accounting, Legal Studies, Textiles, General Maths, Biology, Computing	10.8	10.8	24.3	24.3	5.4	24.3	33.6
BUSINESS STUDIES AND HUMANITIES							
Maths, Economics, Geography, History, Art	2.6	2.6	42.1	26.3	2.6	23.7	37.3
Business Studies, Legal Studies, Textiles, General Maths, Biology	5.9	10.6	18.8	40.0	7.1	17.7	54.5
BUSINESS STUDIES AND SCIENCES							
Maths, Economics, Chemistry, Biology, Computing	15.2	3.0	24.2	30.3	6.1	21.2	21.9
SCIENCES AND MATHS							
Maths, Advanced maths, Physics and Chemistry	11.5	23.1	7.7	38.5	5.1	14.1	18.8
Maths, Chemistry, Biology, Other Science, Computing	15.7	15.7	23.5	27.5	2.0	15.7	26.0
SCIENCES AND HUMANITIES							
Maths, Chemistry, Literature, Music, French, History, Art.	22.2	16.7	13.9	33.3	8.3	5.6	32.7
General Maths, Biology, History, Geography, Health, Art	7.2	10.2	28.3	33.1	2.4	18.7	51.4
Maths, Biology, History, Geography, Art, LOTE	6.4	8.5	22.3	44.7	3.2	14.9	36.3
HEALTH SCIENCES AND PHYSICAL EDUCATION							
Physical Education, Home Economics, Health, Biology, Gen. science, Gen. maths	0.0	12.1	21.2	50.0	3.0	13.6	59.5
Maths, Biology, Physical Education, Health, Home Economics, Legal Studies	4.1	19.2	15.1	41.1	4.1	16.4	43.5
Health, General Maths, General Science, Biology, Home Economics	5.3	13.2	17.1	34.2	6.6	23.7	54.7
VOCATIONAL EDUCATION AND TECHNOLOGY							
Technical Drawing, Technology, General Maths, Computing	3.7	40.7	13.0	16.7	5.6	20.4	58.7
Agriculture, Craft, Technology, General Maths, Health, General Science	8.9	26.8	10.7	16.1	8.9	28.6	61.5
Typing, Secretarial Studies, General Maths, Home Economics, Applied Computing	6.8	12.2	28.4	40.5	2.7	9.5	69.2
Maths, Industrial Arts, Industrial Technology, Technical Drawing	9.3	27.9	7.0	23.3	2.3	30.2	43.0

SOURCE: Tabulations from *Australian Youth Survey* based on the 1990-1994 16 year-old samples and follow-up surveys (unweighted N=6,052; weighted N=1,189,846).

5

Conclusions

Research on the curriculum hs highlighted the role of stratification in the formation of social differences in school achievement and educational outcomes (eg Oakes, 1985; Gamoran, 1987; Lamb, Johnson & Hogan, 1998). While differences can emerge because children who are unequally prepared enter the same classrooms, much of the research reveals that differences emerge because children from different backgrounds do not receive the same schooling. They are separated according to the type of school they attend, the area they live in, the courses they enter, and the subjects they take. Organisationally, their schooling is divided by type of school or by stream as well as by content and pedagogy. Even if children begin in the same classes, as they ascend school they become separated at key turning points. The further they go the more differentiated becomes their schooling.

The results of the present report lend support to this view. By the end of secondary school, most students who have not left school early obtain a senior school certificate. But beneath this commonality are vast differences. Course-taking patterns in Year 12 vary substantially according to gender, socioeconomic status, type of school attended, early school achievement, and ethnicity. Students from different backgrounds tend to enrol in different groups of subjects and as a result are located in different parts of the curriculum. This occurs despite the effects of early school leaving which tend to make the Year 12 population more homogeneous.

The importance of the differences in the patterns of course enrolments is related to the divergent educational and occupational opportunities that the different courses lead to. Young people from higher SES backgrounds, those from private schools, high early school achievers and students from non-English-speaking backgrounds tend more often to study the courses that are avenues to higher education and the professions. Disadvantaged students tend to participate in courses that lead to vocational education and training or more often to entry to the labour market without any further formal education or training. Their experiences in the labour market vary, though longer and more frequent spells of unemployment up to age 19 were reported for young people who took courses that predominantly did not lead on to any further education or training.

The findings emphasise two processes involving the Year 12 curriculum that are related to differences in outcomes. First, the curriculum operates to translate differences that have emerged earlier in school into academic differences that affect post-school educational and occupational opportunities. Differences in labour market destinations related to social background, type of school attended and early school achievement have been well documented (eg see Lamb, 1997; Lamb, Long and Malley, 1998). These relationships are formalised or fortified through the effects of the senior school curriculum which acts as a relay mechanism. Cultural and social differences emerge as students progress through school and these result in differences in senior school course enrolments. The senior school course enrolments in turn lead to differences in access to higher education, vocational education and training, and to labour market outcomes. When students graduate from Year 12 they do so with a credential listing their course enrolments and results. It is this credential, in conjunction with tertiary entry scores, that influences their chances of participation in different types of post-school education

and training as well as employment. The curriculum, therefore, plays an important role in shaping outcomes.

Second, the senior school curriculum not only operates as a transmitter, it also makes an important independent contribution. The results of this report indicate that students from the same social background, of the same sex, attending the same type of school, and with the same levels of achievement at age 14 have different post-school education and training experiences depending on the subjects they take in senior school. After controlling for background, achievement and school differences, there remain variations in the chances of entering higher education and the likelihood of participating in any further education and training depending on the senior school programs that young people participate in. These findings suggest that the school curriculum and student course-taking are influences on post-school outcomes.

These results have important implications for policy. A key issue is the provision of senior school programs. Australian schools face two difficult, competing tasks in providing senior school programs. They must provide courses that can accommodate all students — courses that are sensitive to the diversity in the broad student population. At the same time, they have to provide programs that promote successful outcomes for all young people, not just those who aim to enter university. In recent times, the response from some school systems to these pressures has been to expand the range of subjects and courses offered in the senior school years. This has worked to help provide places for the much larger and more diverse population remaining at school beyond the compulsory years than that of two decades ago. A danger with this approach, as the results of this report suggest, is that more students are encouraged to remain at school, but differential curriculum provision and participation lead to unequal opportunities once students leave school. Expanding the range of courses or the numbers of subjects and units of study may work to intensify stratification of the population and entrench social, gender and scholastic differences rather than open up genuine opportunities to more young people.

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APPENDIX 1: DESCRIPTION OF VARIABLES

Family and school background

1. **Socioeconomic status**: The occupational status variable was derived by translating data on occupation to a four-point prestige scale comprising (1) professional and managerial, (2) clerical and related intermediate non-manual work, (3) skilled manual and (4) unskilled manual. The score assigned to each respondent represented the highest of the scores calculated from both the mother's and father's occupations.

2. **Place of residence**: This variable covered young people residing, at the age of 14, in (1) rural areas of Australia or (0) urban/metropolitan centres. It was derived from a question asking whether the respondent lived in a capital city, some other city, a rural town or village, or other rural area.

3. **Parents' birthplace**: The birthplace variable was coded according to three categories: (1) Australian-born, (2) born in another English-speaking country and (3) born in a non-English-speaking country. To be classified as (1) Australian-born, at least one parent had to be born in Australia. To be classified as (2) other-English-speaking, at least one parent had to be born in an English-speaking country other than Australia, and the other parent had to be born in a country other than Australia. To be classified as (3) non-English-speaking, both parents had to be born in non-English-speaking countries.

4. **Type of school attended**: This measure refers to the type of school attended at age 14. Three categories are used: (1) government school, (2) Catholic school, and (3) non-Catholic private school.

5. **Early school achievement**: School achievement is a score which combines results from standardised reading and mathematics tests administered to sample members at age 14. For this report, the achievement scores were divided into quartiles from lowest (1) to highest (4).

Post-school education and training

6. **Apprenticeship**: Participation in apprenticeships was derived from items relating to qualifications obtained and current enrolments in training and education. It included those who had taken part in an apprenticeship at any time on leaving school until 19 years of age.

7. **Traineeship**: Participation in traineeships was derived from information on enrolments in post-school education and training.

8. **TAFE**: In the analyses, the term TAFE encompasses students who were studying in a TAFE college at any time until the age of 19, excluding those in apprenticeships or in traineeships.

9. **Higher Education**: Participation was derived from information on level of study and name of institution.

Labour market outcomes

10. **Earnings**: The question on earnings asked respondents for their gross weekly/fortnightly/monthly pay. This information has been used to calculate a rate of weekly pay.

11. **Unemployment**: Information on unemployment has been derived from two sources: (1) a question asking respondents whether or not they had been not working and looking for work over the previous four weeks, and (2) the calendar of labour market activity which provides a week-by-week account of the respondent's employment, unemployment and not-in-the-labour force activities.

12. **Type of employment**: Employment information was recorded using the Australian Standard Classification of Occupations (ASCO). Using this coding scheme, six categories were identified to cover the types of work at age 19. The categories comprised (1) technical and professional, (2) trades, (3) clerical work, (4) sales and service work, (5) plant and machine operators, and (6) labouring and related work. If young people held more than one job, the one which they described as their main job was used.

APPENDIX 2: TABLES OF RESULTS

Table A1 Course effects: estimates of residual variation expressed as effect sizes (residual variation for each course expressed as a proportion of standard deviation)

Curriculum Group	Further Education and Training		
	Higher education	Vocational education	No further education
ARTS AND HUMANITIES			
French,German,music,literature,history,geography	0.00	0.17	0.03
Art,art other,graphics,music,media studies	-0.32	0.25	-0.21
History,geography,gen. maths,humanities other,art	-0.31	-0.12	0.19
BUSINESS STUDIES			
Maths,economics,accounting,computing	0.81	-0.16	-0.08
Economics,account,legal studies,gen maths,biol,comp	0.07	-0.32	0.12
BUSINESS STUDIES AND HUMANITIES			
Maths,economics,geography,history,art	-0.29	0.18	0.09
Business studies,legal studies,textiles,general maths,biology	0.24	-0.39	-0.03
BUSINESS STUDIES AND SCIENCES			
Maths,economics,chemistry,biology,computing	0.26	0.14	0.01
SCIENCES AND MATHS			
Maths and physical sciences	0.22	-0.11	-0.05
Maths,chemistry,biology,other science,computing	0.45	-0.09	-0.06
SCIENCES AND HUMANITIES			
Maths,chemistry,literature,music,French,history,art	0.20	-0.11	-0.03
General maths,biology,history,geography,health,art	-0.52	0.05	0.18
Maths,biology,history,geography,art,LOTE	0.12	0.21	0.01
HEALTH AND PHYSICAL EDUCATION			
Physical ed,home eco,health,biology,gen science,gen maths	-0.09	0.03	0.07
Maths,biology,phys ed.,health,home economics,legal studies	0.32	0.15	-0.09
Health,general maths,general science,biology,home economics	-0.14	0.30	-0.24
VOCATIONAL EDUCATION AND TECHNOLOGY			
Technical drawing,technology,general maths,computing	-0.48	-0.12	0.06
Agriculture,craft,technology,general maths,health,gen. Science	-0.26	0.01	-0.10
Typing,secretarial studies,gen maths, home ec, app computing	-0.43	-0.29	0.12
Maths,industrial arts,industrial technology,technical drawing	-0.06	0.21	0.00

Table A2 Labour market status at age 19, by curriculum group (%)

Curriculum Group	Excluding those in post-secondary education				Including those in post-secondary education				
	Employed full-time	Employed part-time	Unemployed	Not in the labour force	Employed full-time	Employed part-time	Unemployed	Not in the labour force	In post-secondary education or training
ARTS AND HUMANITIES									
French, German, Music, Literature, History, Geography	55.0	17.5	15.0	12.5	24.7	7.9	6.7	5.6	55.1
Art, Art Other, Graphics, Music, Media Studies	63.5	14.9	13.5	8.1	37.6	8.8	8.0	4.8	40.8
History, Geography, General Maths, Humanities Other, Art	64.7	16.2	14.7	4.4	43.1	10.8	9.8	2.9	33.3
BUSINESS STUDIES									
Maths, Economics, Accounting, Computing	83.3	4.2	10.4	2.1	25.0	1.2	3.1	0.6	70.0
Economics, Accounting, Legal Studies, Textiles, General Maths, Biology, Computing	74.3	15.4	7.7	2.6	31.2	6.4	3.2	1.1	58.1
BUSINESS STUDIES AND HUMANITIES									
Maths, Economics, Geography, History, Art	80.5	4.9	14.6	0.0	36.3	2.2	6.6	0.0	55.0
Business Studies, Legal Studies, Textiles, General Maths, Biology	65.3	19.4	11.2	4.1	47.1	14.0	8.1	2.9	27.9
BUSINESS STUDIES AND SCIENCES									
Maths, Economics, Chemistry, Biology, Computing	71.4	14.3	11.4	2.9	18.9	3.8	3.0	0.8	73.5
SCIENCES AND MATHS									
Maths, Advanced maths, Physics and Chemistry	71.4	16.6	10.7	1.2	15.7	3.7	2.4	0.3	78.0
Maths, Chemistry, Biology, Other Science, Computing	71.2	11.9	10.2	6.8	23.7	4.0	3.4	2.3	66.7
SCIENCES AND HUMANITIES									
Maths, Chemistry, Literature, Music, French, History, Art.	67.5	20.0	12.5	0.0	26.5	7.8	4.9	0.0	60.8
General Maths, Biology, History, Geography, Health, Art	75.0	11.7	10.6	2.7	50.0	7.8	7.1	1.8	33.3
Maths, Biology, History, Geography, Art, LOTE	70.9	15.5	9.7	3.9	32.3	7.1	4.4	1.8	54.4

Table A2 (cont) **Labour market status at age 19, by curriculum group (%)**

	Excluding those in post-secondary education				Including those in post-secondary education				
Curriculum Group	Employed full-time	Employed part-time	Unemployed	Not in the labour force	Employed full-time	Employed part-time	Unemployed	Not in the labour force	In post-secondary education or training
HEALTH SCIENCES AND PHYSICAL EDUCATION									
Physical Education, Home Economics, Health,Biology,Gen. Science,Gen. Maths	69.3	16.0	12.0	2.7	53.1	12.2	9.2	2.0	23.5
Maths, Biology, Physical Education, Health, Home Economics, Legal Studies	75.7	11.5	9.0	3.8	40.1	6.1	4.8	2.0	46.9
Health, General Maths, General Science, Biology, Home Economics	72.1	14.0	11.6	2.3	50.0	9.7	8.1	1.6	30.6
VOCATIONAL EDUCATION AND TECHNOLOGY									
Technical Drawing, Technology, General Maths, Computing	79.4	4.4	11.8	4.4	69.2	3.9	10.3	3.9	12.8
Agriculture, Craft, Technology, General Maths, Health, General Science	79.7	4.7	10.9	4.7	66.2	3.9	9.1	3.9	16.9
Typing, Secretarial Studies, General Maths, Home Economics, Applied Computing	72.0	12.2	12.2	3.7	60.2	10.2	10.2	3.1	16.3
Maths, Industrial Arts, Industrial Technology, Technical Drawing	76.4	3.6	16.4	3.6	50.0	2.4	10.7	2.4	34.5
EARLY SCHOOL LEAVERS	67.6	10.8	15.3	6.4	48.8	7.8	11.0	4.6	27.8

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