Do New South Wales Catholic schools deliver equitable education for senior school students?

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Graduate School of Education
The University of Melbourne
Abstract

This thesis investigates the equity of provision and access to senior school curriculum in New South Wales (NSW) Catholic schools. Via a quantitative and survey investigation into student enrolment, enrolment trends, engagement, outcomes, transition, satisfaction and access, the thesis draws conclusions as to the equity of the provision to senior students (post-compulsory) in NSW Catholic schools.

The thesis concentrates in particular on Higher School Certificate English, mathematics, science and Vocational Education and Training. The research relies in part on quantitative data for senior student ($N=23,221$) participation and outcomes in the NSW Catholic sector linked to social demographic data as contained in the Australian Bureau of Statistics (ABS) census collection district data. The multi-method quantitative research approach also includes the analysis of survey data collected through phone and email surveys of students ($N=1,566$), parents and carers ($N=647$) and teachers ($N=1,184$).

The research finds that students from low SES backgrounds are disadvantaged on all measures. The thesis analyses the restraints that impact on NSW Catholic schools preventing them catering better for those of greatest need of their service. The research recommends that these restraints be challenged to better serve the poor as is the mission of Catholic schools. It challenges NSW Catholic schools to be more audacious in the manner in which they approach the delivery of the senior school experience.
**Declaration**

This is to certify that

(i) the thesis comprises only my original work towards the DEd,

(ii) due acknowledgement has been made in the text to all other material used,

(iii) the thesis is 60,689 words in length, exclusive of tables, figures, maps, bibliography and appendices.

_________________________________________________  _______________
Paul Rodney        Date
Acknowledgements

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Contributors

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The NSW Board of Vocational Education and Training and the Australian Council for Educational Research for accommodating my request and releasing Catholic schools’ survey data for use in this research.
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<tr>
<td>ABS</td>
<td>Australian Bureau of Statistics</td>
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<tr>
<td>ACARA</td>
<td>Australian Curriculum, Assessment and Reporting Authority</td>
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<td>ACCI</td>
<td>Australian Chamber of Commerce and Industry</td>
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<td>ACER</td>
<td>Australian Council for Educational Research</td>
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<td>ACT</td>
<td>Australian Capital Territory</td>
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<td>AEDI</td>
<td>Australian Early Development Index</td>
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<td>AIS</td>
<td>Association of Independent Schools</td>
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<td>AQF</td>
<td>Australian Qualification Framework</td>
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<td>ATAR</td>
<td>Australian Tertiary Admissions Ratio</td>
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<td>BDC</td>
<td>Board Developed Course</td>
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<td>BEC</td>
<td>Board Endorsed Course</td>
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<td>BOS</td>
<td>Board of Studies</td>
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<td>BOS RAP</td>
<td>Board of Studies Results Analysis Package</td>
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<tr>
<td>CCCH</td>
<td>Centre for Community Child Health</td>
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<tr>
<td>CCD</td>
<td>Census Collection District</td>
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<tr>
<td>CEC</td>
<td>Content Endorsed Course</td>
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<td>CEC</td>
<td>Catholic Education Commission</td>
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<tr>
<td>COAG</td>
<td>Council of Australian Governments</td>
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<td>CSHE</td>
<td>Centre for the Study of Higher Education</td>
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<td>DEEWR</td>
<td>Department of Education, Employment and Workplace Relations</td>
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<td>DET</td>
<td>Department of Education and Training</td>
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<tr>
<td>ENTER</td>
<td>Equivalent National Tertiary Entrance Rank</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>GRGS</td>
<td>General Recurrent Grants Score</td>
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<td>HSC</td>
<td>Higher School Certificate</td>
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<td>HSIE</td>
<td>Human Society and Its Environment</td>
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<td>ICF</td>
<td>Industry Curriculum Framework</td>
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<td>IRSED</td>
<td>Index of Relative Socio-economic Disadvantage</td>
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<td>ISCED</td>
<td>International Standard Classification of Education</td>
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<td>ITAB</td>
<td>Industry Training Advisory Body</td>
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<td>Acronym</td>
<td>Description</td>
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<tr>
<td>JSST</td>
<td>Joint Secondary Schools TAFE (Technical and Further Education)</td>
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<td>KLA</td>
<td>Key Learning Area</td>
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<td>LSAY</td>
<td>Longitudinal Survey of Australian Youth</td>
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<td>MCEETYA</td>
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<td>NAPLAN</td>
<td>National Assessment Program Literacy and Numeracy</td>
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<td>NSPC</td>
<td>National Skills Policy Collaboration</td>
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<td>NSW</td>
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<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
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<td>PC</td>
<td>Preliminary Certificate</td>
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<td>PISA</td>
<td>Program of International Student Assessment</td>
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<td>PO</td>
<td>Post Office</td>
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<td>RTO</td>
<td>Registered Training Organisation</td>
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<td>SC</td>
<td>School Certificate</td>
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<td>SCRGSP</td>
<td>Steering Committee for the Review of Government Service Provision</td>
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<td>Socio-economic Status</td>
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<td>SPSS</td>
<td>Statistical Package for the Social Sciences</td>
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<td>TAFE</td>
<td>Technical and Further Education</td>
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<td>TCB</td>
<td>The Conference Board Inc.</td>
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<td>TES</td>
<td>Tertiary Entrance Score</td>
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<td>TIMSS</td>
<td>Trends in International Mathematics and Science Study</td>
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<td>TVET</td>
<td>TAFE (Technical and Further Education) delivered VET (Vocational Education and Training)</td>
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<td>UAC</td>
<td>Universities Admissions Centre</td>
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<tr>
<td>UNESCO</td>
<td>United Nations Educational, Scientific and Cultural Organisation</td>
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<td>UNICEF</td>
<td>United Nations Children's Fund</td>
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<td>US</td>
<td>United States</td>
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<tr>
<td>USA</td>
<td>United States of America</td>
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<tr>
<td>VCE</td>
<td>Victorian Certificate of Education</td>
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<td>VET</td>
<td>Vocational Education and Training</td>
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Introduction

Australian school educators generally take pride in their craft due to both the professionalism of the process and the quality of the outcome. Despite the slight decline as indicated by OECD measures in recent years, Australian students have achieved consistently well in most international comparative measurements of educational attainment (OECD 2009b). Australian schools are rightly pleased to be counted amongst some of the best in the world. However there are some *blots on the copybook* that cannot be ignored.

If you are an Indigenous Australian or from a low socio-economic background, the light of education is unlikely to shine strongly in your direction as you attend an Australian school (DEEWR 2008b; Thomson et al. 2011). In fact, you may be further disadvantaged by comparison with the ‘advantaged’ due to the widening gap between the educational achievement of the advantaged and the ‘non-achievement’ of the ‘marginalised’.

“... significant levels of educational disadvantage related to socio-economic background exist in Australia, and the performance gap between students of the same age from different backgrounds can be equivalent to up to three years of schooling. This gap places an unacceptable proportion of 15-year-olds at serious risk of not achieving levels sufficient for them to effectively participate in the 21st century workforce and to contribute to Australia as productive citizens.”

Challenges for Australian Education: Results from PISA 2009
(Thomson et al. 2011, p. xiii)

Based on public statements of Australian governments, it is not national education policy to under-resource the learning needs of the disadvantaged (MCEETYA 2008a; COAG 2009b) comparative to their higher status peers yet circumstances seem to result in this reality (OECD 2009b; Thomson et al. 2011).

“Australian Governments must support all young Australians to achieve not only equality of opportunity but also more equitable outcomes.”

The Melbourne Declaration on Educational Goals for Young Australians
(MCEETYA 2008b, p.15)
Government rhetoric of commitment does not seem to be translating into outcomes for the youth of Australia in indigenous, remote or low socio-economic communities. If the consequences of this disadvantage are known to those who can influence this situation and little or no action results, this may be viewed as social exclusion, social inequity, or apathy towards social selection or social reproduction. Possibly all of these social criticisms could be applied.

Australians generally value education, but can those without the perception of its worth (the disadvantaged themselves) be expected to view education as having value, something to be sought and respected, a process to which every effort should be applied? This poses the further question: are Australian schools teaching to expectations rather than to the learning needs of their students? International comparative data\(^1\) would seem to suggest that if a student is disadvantaged on enrolment in the Australian schooling system then it is unlikely for them to graduate with an education to enable social mobility (OECD 2009b). For this group of Australians, schooling may make little, if any difference to their ability to overcome the social position into which they are born. Education in Australia, unlike some other developed countries, may not be realistically presented as a ticket out of disadvantage.

While any measure of social status in any country will identify a ‘bottom quartile’ for their population, these ‘lower socio-economic status (SES)’ individuals might not be disadvantaged in absolute terms. In most OECD countries the upper quartile, as measured by social status, would be described as advantaged. However, it is not the case that the bottom quartile must conversely be described as disadvantaged. Many ‘advantaged’ Australians think that those represented in the low socio-economic demographic have a choice of being there or having the option of working their way out, and therefore would not accept the collective reference of ‘disadvantaged’ being used to describe this sector of the population (Hayes et al. 2008).

When compared with other OECD nations, Australia may be ‘unique’ due to isolation factors that result in remotely located schools and communities. By its nature, this circumstance produces great challenges for governments and policy agencies but even more so when these schools and communities are already locations of low socio-economic status, low equality and low equity (OECD 2009b).

Most Australians never see abject poverty within Australia. However it certainly exists in areas of concentrated public housing, some declining rural centres and in indigenous communities where unemployment and social support is the norm; a low socio-economic culture can become accepted as ‘how it has to be’ by those living there and those ‘looking in’. For social policy to

\(^1\) OECD assessments such as PISA and TIMSS
be equitable in a democratic state it would be the case that those in lower socio-economic status circumstances would have the opportunity to change ‘their lot’, but does Australian educational policy enable them to have this choice?

Like many other Western nations, Australia has a diverse system of schools with different types but generally they can be grouped into government schools, Catholic schools and other non-government schools (independent schools). This latter group is the collective of all schools not contained in the other two groups and therefore is the most diverse. Catholic schools profess to a common philosophy, particularly in that they profess to offer education for all in the Catholic tradition where ‘the needy’ are welcome and all aspects of individual development and wellbeing are emphasised.

“... the Catholic school has at its root: it is a school for all, with special attention to those who are weakest. In the past, the establishment of the majority of Catholic education institutions has responded to the needs of the socially and economically disadvantaged.”

(Catholic Church, Congregation for Catholic Education, 1998, p.15)

Although it is true that philosophy is common, Catholic schools are not a homogeneous group of schools in perception or reality. The system includes high fee-paying schools that many in society view as elitist, as well as systemic (diocesan) schools which charge competitively low fees and are more accessible to all. Although New South Wales (NSW) Catholic schools have a majority of Catholic students, they are not exclusive in this regard. Catholic schools also accommodate children where their parents have an inability to meet the payment of fees.

Throughout the history of Catholic schools in Australia there is evidence of the achievement of social gains for disadvantaged Australians. Australian Catholic schools are proud of their history and of what has been achieved over nearly two centuries (Luttrell 1996).

Discussion of equity in educational provision has been approached from a number of directions in previous studies. This thesis will explore equity by an examination of the effects of potential disadvantage at the point of transition from school where the outcomes of the schooling experience and equity issues are most evident in both quantitative data and survey instruments. Student cognitive outcomes at the conclusion of their schooling, at the point of transition, are measures of the success or otherwise of the schooling experience where student capacities to join the workforce, for social engagement and to earn an income are concerned (UNESCO 2005). Judgements of equity made using data collected at this point may cast light on schooling as a whole and provoke questions in relation to the role of compulsory schooling (Years K-10).
Within a broader study of the senior years in NSW Catholic schools, this thesis also examines a single cohort of students in their final three years of schooling in the NSW Catholic system. Because the study is focussing on the final years of schooling it analyses a situation that is the consequence of many years of influence, most of which are not directly contained in the study. By recording the social influences on current schooling outcomes, this research may be able to pose further questions that subsequent research could address as longitudinal National Assessment Program – Literacy and Numeracy (NAPLAN) data become available and compulsory school reporting through the Australian Curriculum, Assessment and Reporting Authority (ACARA) is implemented from 2010.

The thesis poses the question:

**Do New South Wales Catholic schools deliver equitable education outcomes for senior school students?**

Students from low SES backgrounds are over-represented amongst the lower performing students in Australian Schools (OECD 2009b). Is this also the case in NSW Catholic schools and if so, to what level and how might this be addressed?

The thesis has a simple single hypothesis, should NSW Catholic schools consider doing more to address inequity in contemporary post-compulsory education.

In establishing the hypothesis, the researcher has considered the caution provided by Ball (2010), where he recognises that schools may not be responsible for inequity nor may they be able to truly addressed inequity of their own making or inequity resulting from inherited social context.

“... researchers sometimes forget that inequalities happen in a complex and dynamic interplay of structures and processes crucially involving decisions, values and priorities and the actions and interests of various parties deploying unevenly distributed capitals and resources. They involve things done within families, things being done to families and forms of complicity, including what Bourdieu calls ‘self-exclusion’, decisions involving the avoidance of places which are not for ‘people like us’ resting on perceptions and understandings about how the world is ordered in terms of what is valued, what is to be chosen and avoided. Inequalities are also formed and reproduced

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2 At the time of the research, students were required to remain at school until the completion of the School Certificate which for most was at about sixteen years of age.
3 NAPLAN testing was first introduced into all Australian schools from 2008.
Within policies and processes of government, civil society and through the ‘institutional orderings’ or schools as forms of racism, sexism and classism.”

(Ball 2010, p.158)

In asking the question posed by the thesis further specific questions about students in NSW Catholic schools must be asked.

This thesis will examine:

- What actually come to pass to and for students from lower SES backgrounds within the senior years in NSW Catholic schools.
- If there is a link between the socio-economic status (SES) of the student’s household and subject selection and performance.
- What the educational challenges are for students from lower SES backgrounds in NSW Catholic schools.
- How might Catholic schools ‘short circuit’ the cycle of potential social reproduction inherent in Australian society.

In examining these issues the thesis addresses such questions as:

- What is the historical and contemporary context of NSW Catholic schools?
- Who attends NSW Catholic schools?
- What are the social patterns of achievement and participation in education?
- What are the strengths of the social patterns?
- What are the immediate consequences of the social patterns?
- What are the links to the development of these patterns?
- What are (or might be) the long-term consequences of these social patterns?
- Who is found in the senior years of NSW Catholic Schools?
- Who leaves early?

What do we know about the early leavers? The goals of compulsory education in any democracy are to be accessible to all, of high quality and to provide support for the appropriate preparation of all individuals to become full members of society. An equitable system of school education delivers on these goals. Social patterns and cultures in schools result from the pressure of social influences, both positive and negative. Negative social influences include things such as segregation, racism, marginalisation, social reproduction, and numerous variables that might be managed if known and addressed. To be equitable, schools need to be aware of negative social influences and actively work against them. An obvious and topical example is
bullying in school. Society would rightly judge schools as inequitable if they were prepared to overlook such an influence on the education of an individual or minority group. Schools that advocate equity simply cannot tolerate or justify bullying as an acceptable practice with the mantra “bullying has always happened in schools”. Nor can social patterns be justified with the expression “there always has been and always will be social patterns”.

Chapter Two will define terms and deal with the complexity of the social context. This chapter will concentrate on factors of social influence, both external and internal to the individual. It will position both the student and the school in social perspectives and in particular from the perspective of those found in low socio-economic communities. Chapter Two also discusses the social position and influence of curriculum in general terms as a preparation for an in-depth study of student enrolment and outcomes within the NSW senior school curriculum.

Chapter Three will define and detail the methodology of the research.

Chapter Four will introduce the reader to the student cohort, the schools that they attend and the curriculum they address. Student retention beyond the compulsory years of schooling in NSW Catholic schools will be addressed in this early chapter to allow the reader to engage with the remainder of the thesis with a more fulsome knowledge and understanding of the students contained in the study.

Chapters five to eight will concentrate in particular on an analysis of enrolment and achievement within groupings of Key Learning Areas (KLAs) and the consequence of social influences, in particular socio-economic status (SES). Chapters Five to Eight will report the results of an analysis of the senior years of schooling to determine both the patterns and outcomes of the participation of students in NSW Catholic schools. Some potential influences on student outcomes will be explored, some explanations for the results discussed and further questions posed. Chapter Eight, which focuses on Vocational Education and Training (VET), provides a particularly detailed discussion and analysis, as the role of VET in addressing or perpetuating inequalities has been extensively debated. It incorporates both the Board of Studies and the ACER survey data to explore these issues. Chapter Nine will report on the findings from the survey data collected from students, parents and carers, and teachers. The final chapter (Chapter Ten) will draw on evidence from the preceding chapters to discuss social trends across the curriculum and between KLAs and specific subjects and school type. This chapter will specifically response to the title question of the thesis.

The KLA groupings in the study will consist of:

Chapter 5: English;
Chapter 6: Mathematics;  
Chapter 7: Science; and  
Chapter 8: Vocational Educational and Training (VET).

It should be noted that Religion and VET subjects have been separated from the KLA groupings in which they may more naturally reside. The Study of Religion subjects were removed from the Human Society and Its Environment (HSIE) grouping to allow this grouping to be analysed without bias arising from the fact that the study of a ‘religion course’ is compulsory in most NSW Catholic schools. The HSIE grouping with religion removed can be better compared with the other ‘free-selection’ KLAs. VET has been established as a separate Key Learning Area to enable better comparative analysis, as participation in VET is often due to a different set of influences from those applying to the selection of more general curriculum (Evans 2005; Dalley-Trim 2008).

To the author’s knowledge, this study is the first full-cohort study to bring together senior student enrolment and performance information for the NSW Catholic sector with individual student socio-economic measures. In order to address equity of provision in senior school education in NSW Catholic schools, it is imperative to first explore the links between enrolment, outcomes and social context. Awareness may be the first step to addressing negative equity influences, particularly for disadvantaged students from low socio-economic households.

At one level, equity is fairness where resources are applied equally in support of all citizens of the nation state. This simple definition would be widely accepted by many sociologists of democratic traditions yet it may not invite inclusiveness (Patterson 2003; Augenblick et al. 1997; Betts et al. 2000; Unnever et al. 2000). Inclusiveness requires endeavour beyond the provision of resources. It seeks to produce social outcomes reflective of democratic principles where all citizens are supported to ‘take their place’. If equity requires inclusiveness, resource provision on an evenly distributed (fair share) basis may be flawed, as the need for support of the ‘disadvantaged’ may be greater than that of the general society. As Masters et al. (2009) indicates, those requiring greater support in order to be equal citizens are generally located in low socio-economic circumstances. The poor may be those isolated from the offerings of a progressive democratic society. Although a ‘fair share’ of economic resources in the form of schooling may be provided to them, it may fall short of having the effect that the same level of resources may have in other sectors of society. Unless Australian education is founded on equality of opportunity principles, low SES may be a social position from which there will seldom be escapees.
Chapter 2:

Literature Review

Introduction

Governments in Australia have publicly committed to improving the situation for youth in low socio-economic communities (COAG 2008b, 2008c). However the outcomes for students from low SES households are well below the average for the Australian population (Thomson et al. 2011; Masters et al. 2009). Currently, the ‘will’ is not producing the desired outcome; who are these young people and what might be the cause of the disadvantage?

This chapter will define equity and low socio-economic status in the Australian context before engaging in a discussion of the influences to be found within such communities. The economic and cultural resources of the family form the focus of the discussion of socio-economic status in this chapter and can have a dramatic influence on the development of children from families where these resources are scarce (Dickerson & Popli 2011). This chapter also considers the extent to which schools can address outcomes arising from the unequal distribution of these resources. Other factors such as aspirations, self-esteem, self-concept, perception and resilience, are also discussed, although these are not always easily separated from the influence of socio-economic status.

This chapter will explore these issues and consider the findings reported in the literature on their relationship to students’ curriculum choices and educational outcomes.

Definition of terms:

Equality in education may be defined both in terms of access and outcomes. As the period of post-war growth of secondary schooling in Australia neared its completion in the 1960s, universal provision of secondary schooling and the accompanying access became the norm for most children (except those in the most remote communities) across the country. However, this did not translate into universal secondary school completion. The expansion of the system and universal access did not in themselves reduce inequality, with students of low socio-economic status continuing to be under-represented in terms of school completion, achievement and transitions to university (Anderson & Vervoorn 1983, Teese & Polesel 2003, OECD 2009b).
These and other researchers in the international sphere (including Baudelot & Establet 1971 and Bourdieu & Passeron 1977) have also noted inequalities in access to some areas of the curriculum – particularly those which lead to the most prestigious faculties in universities. However, the research also suggests that the upper secondary curriculum has been slow to provide options for the new populations of young people now remaining in upper secondary education (Tesse 2000). To an extent, the vocational subjects that have been offered under the guise of VET in Schools have helped to create a curriculum space for some of the traditionally excluded student groups (Teese & Polesel 2003) and the value of these subjects in catering for the more socially diverse children completing school has been acknowledged (Malley et al. 2001, Lehr et al. 2004). However, the research has also suggested that a differentiated curriculum may result in social selection (Goodson 1993, Teese 2000). For this reason, it is important to ensure that all children are valued and have access to all areas of the curriculum, with curriculum choices and outcomes not determined by the social status of the student (Osler & Starkey 2004; Fielding 2007); i.e. curriculum and structures allowing all students to engage and achieve irrespective of ability, culture, religion, disadvantage or background (Ladson-Billings 2004). However, international comparative measures show Australian education as one of relatively low equity, lacking inclusion and resulting in social reproduction (OECD 2009b).

What is Socio-economic Status (SES) and how might it be linked to a measure of equity?

Freitag and Schlicht (2009) define social inequity in education as “the dependence of educational outcomes on an individual’s social background, rather than on his or her ability and capacities” (p. 67).

Socio-economic status (SES) is a universal term used widely as part of the Australian educational lexicon. In the debates over school funding to non-government schools, consideration of SES has been important, especially where SES is linked to levels of government funding provision (Gonski 2011). In this circumstance the term is usually referring to an SES score⁴ and not necessarily a true understanding or measure of social status (measure of social advantage and disadvantage). Although the Australian Bureau of Statistics (ABS) definition of SES and the factors used to determine it, do have a place in this thesis, SES is a consequence of many more factors than those used as measures by the ABS; both measurable and immeasurable factors. In Australian research, the ABS SES measures are used widely in comparative sociological and educational research. The ABS SES data are valuable measures

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⁴ The individual school funding provision is linked to an SES score determined for each non-government school. The score is derived every four years from ABS data based on the individual student residential address and the connection of this address to Census Collection District (CCD) data. The CCD data used to derive an SES score derived using parental income, education and occupation (DEEWR 2008a).
for research purposes. However care is needed to ensure that components used to determine the SES are appropriate for the purpose for which it is being used (ABS 2008a).

The ABS refers to low SES as the bottom 25 per cent of the population based on combined measures (generally; income, education and employment status) with high SES accounting for the top 25 per cent; all households falling within the middle two quartiles (50 per cent of the population) are representative of medium SES (ABS 2006). Another measure relates to the poverty line - about 15 per cent of Australian children live in families with income below the poverty line⁵ (Lamb & Teese 2005). Although this rate is not as high as in previous decades, it is higher than for virtually all European nations (UNICEF 2005). For indigenous children in Australia the rate is likely to be three times the rate of the general population (Ross & Mikalauskus 1996; Marks 2006).

While there is widespread acceptance of the ABS definitions in Australia, the means by which they are applied⁶ result in variation and non-comparative data and research results. It should be noted, that over time, the ABS has enhanced the measures used to produce SES indexes, making direct comparison problematic for some longitudinal research. In ABS parlance, an SES measure may comprise various inputs (underlying variables) to produce the one index (measure). Inputs could include underlying variables such as: employment, income, expenditure, time use, family characteristics, crime and safety, health, housing, transport, indigenous status, migrant status, education and training – measures which may be indicative of relative advantage or disadvantage (ABS 2008a; Hayes et al. 2008). Different underlying variables may be used as a discrete measure of advantage or disadvantage, but not necessarily both. Researchers need to take particular care that the topic of the research is suitably aligned with the underlying variables before using ABS indexes to draw conclusions (Hayes et al. 2008).

As ABS SES measures (indexes) are for ‘groups’ of people or households, they cannot be directly applied to individuals within the groups or to a particular household. A census collection district (CCD), for example, will contain approximately 200 households that on average display the indexes as calculated for the Census Collection District but not all households within; i.e. there will be households displaying significantly different characteristics to those reported for the CCD. Research conducted by Baker and Adhikari in 2007 (as cited in ABS 2008a) into the application of CCD indexes to individuals of interest in research studies found high risk of ecological fallacy (many people are likely to be misclassified). For research

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⁵ Families with income 50 per cent lower than the median income level for the population.
⁶ It should be noted that many researchers do not apply the ABS definition or indexes as provided by the ABS but combine variables (both ABS and non-ABS data) that may be most suited to their study.
conducted on groups of people, as the percentage of the research groups rises as a proportion of the total CCD group, the validity of the correlation to CCD indexes also rises.

The ABS Socio-economic Indexes for Areas (SEIFA) are ordinal but are not expressed on a linear scale. Researchers can make accurate comparisons between areas using SEIFA but cannot make judgements as to relative difference (percentage judgements) of advantage or disadvantage using the scale. As the scale is not linear, the relative difference between 500 and 550 could be quite different for the 1000 and 1100 variation. Although both SEIFA examples demonstrate a 10 per cent variation, the differences they represent are not comparable; nor can researchers assume that the CCD with an index of 500 is twice as disadvantaged as one displaying 1000 (ABS 2008a).

The term school SES is a collective measure but may be understood in different ways:

a) Aggregation of ABS SES data for each student by home address and ABS Census Collection District (CCD) data.

b) Aggregation of SES as a consequence of information provided by the child, i.e. aggregation of SES data by parental occupation.

c) SES as determined by the postcode and ABS CCD data of the school site.

d) ‘SES score’ as determined by the Department of Education, Employment and Workplace Relations (DEEWR) and used to fund non-government schools.

e) Combinations of the measures above are also sometimes used.

In addition to some confusion within educational discussion in Australia, there is no means of making direct comparison internationally, as measures, methods of calculation and collective descriptive terms may differ.

“Clearly SES is a complex and abstract concept with no agreed international definition. Socio-economic status is thus difficult to measure for monitoring purposes for it embodies differences in social, cultural and economic factors related to class differences.”

(James 2002, p.17)

Social status results from a broad blend of variables, inclusive of many beyond those used to determine ABS SES, although it should be noted that the measures used by the ABS to determine SES are likely to be reflective of a far broader group of influences. Influences in this context might include factors such as: psycho-social, demography, gender, ethnicity, personal
history\textsuperscript{7}, social context and indigenous status. Although influences may be difficult to measure and to link to student performance, this study investigates where linkages may be possible. Of these variables, psycho-social factors may be the ones more easily controlled during the formative years. Because these factors are so influential on student outcomes (Marks et al. 2001; James 2002; Elder 1998); they will be discussed in depth later in the chapter; noting successful outcomes being achieved by capable parents in functional family units and by skilled teachers\textsuperscript{8}.

In his Australian study of the links between socio-economic background and involvement in higher education, James (2002) firstly looked to the ABS SES definitions to quantify SES but found trying to use the product of these three factors problematic for analytical purposes because of the inter-relational nature of their effects. He also found very similar correlations between two of the three measures used to derive the ABS SES measure when used as comparators separately. As parental educational attainment produced the clearest pattern of variation in his study of student self-concept of ability and aspiration, he decided to restrict his SES measure to this one variable by defining SES as:

\begin{itemize}
  \item \textit{Lower SES} \hspace{1cm} \textit{Parent(s) did not attend school, attended primary school or attended some secondary school}
  \item \textit{Medium SES} \hspace{1cm} \textit{Parent(s) completed secondary school and/or vocational qualification, diploma or associate diploma}
  \item \textit{Higher SES} \hspace{1cm} \textit{Parent(s) completed a university degree}
\end{itemize}

(James 2002, p.13)

Using this definition for SES, James (2002) found that students from lower SES households had roughly half the likelihood of participating in higher education than do Australians from medium and higher socio-economic backgrounds and that this finding had been consistent for the decade prior to the study. Based on James’ study, this would seem to be evidence of social selection in the outcomes of upper secondary schooling. A broader investigation of the effects of SES on student possession of \textit{capital} is needed to answer this question more fully. James’ focus here is on a measure of socio-economic status based on the educational capital of the family. The work of Bourdieu and Passeron (1977) links this to the cultural, social and economic capital evident in families.

\textsuperscript{7} This measure might include many factors such as parental education attainment, marital status, number of children, age range of children, single and dual parent status, etc.

\textsuperscript{8} Broad use of the term ‘teacher’; inclusive of all who support personal development, they may be trained or untrained, found in both formal and informal settings.
At about the same time as the study conducted by James (2002), Jones (2002) investigated the feasible and appropriate use of SES measures for purposes similar to those undertaken in the study by James. Jones (2002) recognised that a single measure may be best adopted for the same reasons as did James, but recommended a different measure as being most appropriate to use as the measure of SES, that being parental occupational status at the time of involvement of their children in his study. He recognised the close correlation of student educational achievement to parental educational achievement but believed occupational status to have more relevance for his study.

Studies investigating the relationships between educational outcomes and socio-economic status typically group students into categories indicative of relative advantage or disadvantage, for example “high SES” or “low SES” or the top and bottom quartiles of students arising from categorisation according to measures derived from the ABS SES definition.

Most measures of SES comprise income, but as noted earlier in the work of James (2002) it may be that family education levels are better predictors of educational outcomes than wealth or income. For example, it is undeniable that Australia has some ‘wealthy schools’ (income and resource above the norm) and low or no-fee schools\(^9\) but by way of introduction and clarification, the economic advantage on display at wealthy schools may not necessarily result in educational advantage (or disadvantage). It could be debated that parents from a materially advantaged position (wealth) are able to buy educational and social advantage for their children but this would only be true if such children receive educational advantage from attending such schools\(^10\). The direct correlation between family wealth as a discrete measure and student achievement is in fact weak (Ganzach 2000; Fejgin 1995). Mayer (1997) suggests that parental income alone has only minor effects on a small number of student outcomes. Having said this, Teese (2000) has noted the correlation between educational capital and economic capital.

Selective high schools also produce significant educational advantage for students who are able to prove above average ability in the selective entrance tests (Braithwaite & Kensell 1992). But the educational advantage provided to these children is more likely to be as a consequence of school and family culture than as a reflection of physical resources found in the school. The

\(^9\) Discussion on this issue will be addressed later in the thesis.

\(^10\) If these students perform better than they would have by attending a local non-fee-paying comprehensive school then social advantage could be argued to be evident.
influences on educational attainment are many and the interrelationships between the factors need to be understood in order to positively affect improved educational outcomes.

Given that SES, especially when it is measured in terms of parents’ educational background, seems to have a strong influence on educational attainment, what are these influences and how do they take affect? The influences on educational attainment can be divided into four major types (refer to Figure 2.1 below). The interrelationships between the groups are also important. Each of the groups and the interrelationships are discussed below.

**Figure 2.1: The influence of socio-economic status (SES) on educational attainment**
The influence of socio-economic status on educational attainment

Throughout the chapter thus far, the family (household) has been referred to as if it is a discrete and homogeneous ‘entity’, but the composition of the family and the relationships within it vary considerably and these variations are important for the study. Factors such as family structures (e.g. single-parent family), family stability, support mechanisms, strength of relationships, parental skill in parenting, hygiene, health, resource provision, time available to the child, educational support and encouragement available to the child, are but a few of the many and complex factors within the family that may have some influence on educational attainment. Although the thesis acknowledges their critical importance, there is not space to cover all in depth. It is important to recognize that children from low-income families typically begin their schooling experience with fewer academic and social skills than their middle-class peers (Lee & Burkam 2002; CCCH 2009).

“There are higher proportions of children living in the most socio-economically disadvantaged communities and in very remote areas of Australia who are developmentally vulnerable … at the point of school entry”

_A Snapshot of Early Childhood Development in Australia_  
(Centre for Community Child Health, 2009, p. iv)

In a number of studies conducted in the United States, researchers found that the ‘poor start’ was the main contributor to continued relative low performance (Denton & West 2002; Duncan & Brooks-Gunn 1997; Alexander et al. 1997). The same factors that result in less than average skills when starting school may have a continuing influence as children from low SES families move through the schooling experience (O’Sullivan & Howe 1996). For some students, the mechanisms provided by the school seem not to be able to compensate for the negative effects associated with their family context. What might these effects be and what consequences might the ‘internal’ family influences have? Table 2.1 attempts to summarise some of the influences. This summary makes some generalisations and is certainly not intended to be reflective or indicative of all or even the majority of low SES households. These outcomes are not limited to low SES environments and may be found across all SES contexts.
Table 2.1: Potential impacts of low socio-economic status

<table>
<thead>
<tr>
<th>Influences</th>
<th>In low SES families</th>
<th>Possible consequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family stability</td>
<td>Less stability due to social and economic pressure</td>
<td>Stability and consistency are very important to the development of children, particularly in the early years. Children need to be able to judge life experiences against a ‘norm’ in order to develop a consistent and socially acceptable pattern of behaviour. The effect of appropriate role models is important in the early development of social capital (Ainsworth 2002; Jansen et al. 2009).</td>
</tr>
<tr>
<td>Personal support mechanisms</td>
<td>Available to a lesser degree</td>
<td>Mechanisms such as the consistency of support provided across the extended family, appropriate reaction to and dealing with crisis, allow the child to develop confidence due to the confidence displayed in their surroundings (Crane 1991). Children in low SES households are less likely to experience consistency resulting in less opportunity to develop these traits (Vinson 2004).</td>
</tr>
<tr>
<td>Appropriately deep relationships</td>
<td>Generally consistent across all SES family contexts but range available to individual children is more limited</td>
<td>Strong (rich) relationships allow the child to feel and develop appropriate skills related to empathy, caring and affection. Children in low SES families are less likely to have a range of such relationships, so may develop fewer skills in these attributes as a consequence (Singh-Manoux et al. 2006).</td>
</tr>
<tr>
<td>Skill in parenting</td>
<td>Generally less skilled than parents in mid-range SES households, parents are more likely to be inconsistent and have a smaller range of appropriate means of dealing with children’s behavioural and developmental needs.</td>
<td>As many parenting skills are a repetition of those experienced as a child, there may be evidence of social reproduction via this influence. Children are more likely to be a reflection of the values held by the parents. Community expectation of low SES areas is consistently less than in mid-range SES communities (DeGarmo et al. 1999; Erebus International 2005; Singh-Manoux et al. 2006).</td>
</tr>
<tr>
<td>Sleep Health</td>
<td>Potentially poor sleep with educational consequences</td>
<td>“Many children from lower socio-economic status (SES) families sleep poorly, and when their sleep is compromised, the effects on cognitive functioning and academic achievement may be greater than for less disadvantaged children.” (Buckhalt 2011, p.59)</td>
</tr>
<tr>
<td>Hygiene</td>
<td>Directly linked to the availability of economic resources (capital)</td>
<td>Although hygiene is a critical factor in many third world countries, in Western societies it is a lesser influence on students learning but cannot be ignored (particularly in Indigenous communities). Low SES families have less access to proper hygiene and appropriate diet. Both hygiene and diet are factors that can undermine the opportunity offered by the school (Vinson 2004; Gorman 2003).</td>
</tr>
<tr>
<td>Category</td>
<td>Description</td>
<td>Notes</td>
</tr>
<tr>
<td>---------------------------</td>
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<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Health</td>
<td>Poor health is more prevalent in low SES households.</td>
<td>In most western societies, good health remains an expensive commodity. To this end it can be beyond some families to provide the health care necessary for all health issues to be dealt with appropriately; i.e. deafness from treatable middle ear infection(^{11}) is more prevalent in children from low SES households (Lynch 2008; Rothstein 2008; Rumberger 1987). Mental Health issues are more prevalent in low SES communities (Crosnoe &amp; Huston 2007; Leventhal &amp; Brooks-Gunn 2000; Rumberger 1987).</td>
</tr>
<tr>
<td>Nutrition</td>
<td>Poor nutrition is more likely to be an issue in lower SES circumstances</td>
<td>Poor nutrition pre-birth and in infancy can cause long-term impacts on health, obesity and development. This seems to be particularly true for women from low socio-economic backgrounds in Western societies (Kestila et al. 2009; Prigatano et al. 2008; Kawachi &amp; Berkman 2003).</td>
</tr>
<tr>
<td>Resource provision to support educational attainment.</td>
<td>As provision is most often reliant on economic capital, low SES households are less likely to be able to provide the same level of resource.</td>
<td>Students are less likely to have access to books, computers, internet, funds to support educational experiences (i.e. excursions, travel, visits etc.), quality pre-school experiences(^{12}), etc. (Prof. Tony Vinson as cited in Tomazin &amp; Nader 2009; Thompson &amp; Fleming 2003; Heckman &amp; Masterov 2007).</td>
</tr>
<tr>
<td>Time available to the child</td>
<td>‘Learning time’ is less likely to occur in low SES homes.</td>
<td>Low SES households may value learning and education less. Parents may be less likely to spend time with children on ‘learning’ pastimes and as a consequence students from low SES households start school ‘behind’ their mid-range SES peers. This phenomenon can vary significantly within cultures and across cultural groups (Ho Sui-Chu &amp; Willms 1996; CSHE 2008; Okpala et al. 2001).</td>
</tr>
<tr>
<td>Educational support and encouragement</td>
<td>May be less in lower SES family contexts</td>
<td>Lack of success is more often the ‘norm’ and more likely to be accepted as the expectation in lower SES households. Average to low performance can become an expectation and be self-fulfilling in lower SES communities (Tranter 2003). Negative school experience of the parent can be passed onto children by the manner in which school is discussed and by lack of parental involvement in school life. (James 2002). Although students tend to have less school orientation as they age (Sanders 1998) the role of the home at maintaining the orientation at appropriate levels is critical to success (Crosnoe 2001).</td>
</tr>
</tbody>
</table>

\(^{11}\) Middle ear infection resulting in hearing disorder is particular prevalent in Indigenous children in isolated low SES communities but is not confined to such situations.  
\(^{12}\) Australia spends 0.1% of GDP on the provision of preschool opportunities compared with the OECD average of 0.5% of GDP (OECD 2009b). The frequency of preschool attendance is less for children from low SES households and this is especially true for Indigenous children and those from non-English speaking backgrounds (SCRGSP 2008).
Internal family structures constitute a study within themselves but some aspects are noteworthy in this thesis. The traditional family of two parents with their children living as a unit is less likely to be the norm in low SES households and the ratio of children to adults is greater (Marks 2006). Where both parents work, the father in particular is more likely to be absent from the family during times when the children are awake or at home in low income families. This is due to working longer hours and shift work requirements. This is also the case for the same reasons if comparing the presence of women (the mother) in low and high socio-economic households. All these factors can detract from the opportunity for interactions that may foster development. The lack of opportunity reduces early learning and sometimes negates other primary learning gained from external sources, due to a lack of reinforcement in the home (Okpala et al. 2001).

Children from single-parent families also show greater variance in ‘starting’ ability when they present for school than do children from two parent families (Wang, & Ngai 2011). Children from traditional families are less likely to be low achievers (Marks 2006). Large families have less expendable economic capital per capita and in lower SES families this can be evident in a lack of access to educational opportunities. Yet compared with other factors, family structure has little predictive effect on student academic achievement when adjusting for other variables (Considine & Zappala 2002).

In large cities, low SES households are generally grouped into low SES suburbs and regions due to the high cost of real estate and rents in other areas. These areas often carry the stigma of low status and of being impoverished. It would seem that ‘geography’ in this instance places negative expectation on families that once again may be self-fulfilling; Ainsworth (2002) suggests in his US study that neighbourhood effect accounted for as much as 40 per cent of the influence on educational achievement. Weaker educational outcomes are strongly evident in areas of low SES in large Australian cities (Teese and Polesel 2003) and some have the view that this phenomenon is ‘social selection’, arising from a lack of political will to short circuit the generational repetition of this social effect (Stephen Lamb as cited in Tomazin and Nader 2009). However, Marks (2005) and Trusty (2002) remind us that schools are also the major source for optimism for social mobility in such circumstance.

Geography also has its influence in a vast country such as Australia, particularly by way of location in relation to services such as quality schools. Families located in rural and remote settings must be self-reliant for many things and may lack a concentration of economic and cultural resources needed to assist their children effectively (Vinson 2004). A family in this

13 In Sydney these suburbs tend to be in the outer West and outer Southwest; in Melbourne these are outer North and Western suburbs (Vinson 2004; Stephen Lamb cited in Tomazin & Nader 2009).
setting may be less likely to be able to draw on the resources of a broader vibrant ‘local’ community. The community in which they are ‘forced’ to be located offers no choice; in essence, it is this community or no community. Once again lower SES families constitute a higher percentage of rural and remote households (ABS 2006; Vinson 2004).

The cost of living (outside mortgage repayment and/or rent) in outlying suburbs or rural locations is usually greater than for inner suburban households. This places further strain on the limited economic capital of the lower SES household and indirectly the opportunity for cultural capital development of the children living in these lower SES homes (Thompson & Fleming, 2003). Studies conducted in the United States, where social patterns are similar to those in Australia, show that schools located in areas of low SES attract teachers of lesser quality (Augenblick et al. 1997; Betts et al. 2000; Unnever et al. 2000). It was also found that teachers are more likely to be from middle SES backgrounds and as a consequence have lower expectations of children\(^{14}\) from lower SES households (Hallinger et al. 1996; McLoyd 1998; Kennedy 1995). Negative learning environment is further exacerbated where pedagogy reflected a curriculum centred style of teaching when compared with teachers of similar background, teaching with a student-centred pedagogy (Hauser-Cram et al. 2003). Low expectations by teachers and poor pedagogy as a result are significant in the development of students’ self-concept and self-perception of ability, particularly in young and developing learners (Gill & Reynolds 2000; Alvidrez & Weinstein 1999). Teachers’ perceptions in the earlier years have an indirect effect by way of the educational experience offered to the child and the rate of progress to which the child is exposed; but as the child learns to ‘read’ social cues, the perception may have a more direct effect (Hatcher 1998; Jussim et al. 1996). Entwisle et al. (1997) suggest that children may be most vulnerable to such impressions at points of transition where new classes with new teachers and new fellow students are forming.

Evidence of teacher perception as viewed by the child has a compound effect on performance (Cooper 1979). The Jussim et al. (1996) study found that it was the obvious which had the greatest effect on teacher perception; that being the observable ability of the child. The same research found that the perception once ‘communicated’ seemed to impact more on children from low SES households.

Lareau’s (2011) longitudinal study showed that children raised in low SES households moved to adulthood more quickly than did children from high SES households who remained under both parental guidance and influence far longer. The respect and the gratitude of young adults for

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\(^{14}\) Both teacher and parental expectation has greatest impact on boys, it may be that the expectation is less or it may be that the boys sense the lowered expectation more (Entwisle et al. 2007).
their parents were greater in low SES circumstances even though the break from the family was earlier in their development. This may be an important factor when working with young adults involved in senior school education, as their considerable responsibilities in the home may be at odds with the way they are treated at school.

Children may be particularly vulnerable to confusion where a duality of expectation exists between school and home. This can be particularly damaging where teachers’ lower expectations match those of the home (Hauser-Cram et al. 2003). Lasky (2000) found that teachers became demoralised, angry, and discouraged with children (and their parents) who did not share the same values and expectations as themselves. In a controlled study in the United States, teacher expectation of their students dropped as SES dropped and this was especially so for male students (Aruguete & Aruguete 2008). As teachers themselves are less likely to be ‘products’ of low SES families, a natural disconnect often exists. Teachers in this circumstance can be continually reminded of the ‘mismatch’ between themselves and those they teach by way of variation in linguistic capital\(^{15}\) (Bernstein 1990). Well-designed pre-service education programs can lessen the outcome of such disparity but continuing professional support for teachers is needed to enable them to continuously process the unfamiliar environment in which they may find themselves, particularly in the earlier years of teaching (Benner & Mistry 2007).

\textbf{Psycho-social influences on educational attainment:}

Studies of socio-economic influences on school student performance recognise the significant association between psycho-social factors and measurable aspects of student performance. Individual psychological influences are among the most complex, largely due to the interrelationship between them. Some studies report that the majority of psychological influences, although affected by social and economic factors, are not determined by them (Marks et al. 2001; Shannon 2000). That is, the significance of the effect of psychological factors on individuals varies little as socio-economic factors differ. A second line of thought supports the theory that SES largely determines the psychological influence and by inference student educational social status and their potential to achieve educationally (Lee et al. 2008).

The most significant of the psychological factors is the student’s concept of their own ability, their understanding of their parents’ expectations of them and the students’ individual educational aspirations as they move through the education process (Hattie 2009).

\(^{15}\) Bernstein introduced the concept that the language we use and the manner in which we speak is class (SES) linked, he referred to this as \textit{linguistic capital}. 
Self-concept of ability can be affected by many personal and external ‘forces’ over the schooling life of the student but it would seem on average that it is largely ‘formed’ by the age of 14 or 15 (Elder 1998). The external influences on the development of the individual student’s concept of ability are strongest when delivered through persons of value in the life of the student; i.e. parents, respected teachers and peers (Engerman & Bailey 2006). The manner in which achievement (or lack of) is presented, reported and discussed is critical to the development of the self-concept of ability (Hattie 2009). If achievement is kept ‘within reach’ of the student, they are far more likely to develop higher order positive self-concepts (and in turn educational attainment) than when it is perceived to be beyond their ability. Marks et al. (2001) report that:

“... one standard deviation increase in self-concept of ability (in Year 9) is associated with an increase of nearly 5 ENTER score points (5 to 8 per cent)” at Year 12.

(Marks et al. 2001, p.41)

A number of researchers indicate that personal self-concept of ability is the most significant individual influence on student performance and therefore educational attainment (Hattie 2009; Marsh 1991, 1987). A positive perception of ability enhances a student’s engagement, confidence with assessment and improves prospects of retention and transition (Trusty 2002). It should be noted that perception of ability is exactly that, perception. A student with ability and low self-concept is more likely to perform below ability, and to some extent, the converse is true. This phenomenon is evident in studies conducted involving Australian students in government and independent schools (Marks et al. 2001). A higher proportion of students in independent schools are academically able, yet students in independent schools indicate a lower self-concept of ability. Academic competition within these schools may be providing a ‘message’ of inadequacy to high ability students who might be expected therefore to have a very positive self-concept of ability (Marsh 1987).

Hattie (2009) argues that a realistic self-concept of ability is the optimum for achievement, yet others believe that positive self-concept of ability (even if inflated) is important, particularly in younger children. It may be that ‘the sky is the limit’ approach in young children moderating

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16 Although variables can be both internal and external, the way these are viewed by the student as such, also may have significant affect. Those students described as having an internal locus of control propensity are more likely to succeed academically because they perceive that they have more control over their outcomes (Parker 1994; Shepherd et al. 2006).

17 Equivalent National Tertiary Entrance Rank; used in Victoria to rank students wishing to progress to university after the completion of the Victorian Certificate of Education (VCE).
towards realistic self-concept by adulthood may be of highest value for educational achievement.

There is debate as to the best approach in developing the self-concept of ability. Over recent decades the concept of ‘failing’ has largely been removed from the Australian educators’ vocabulary but it may be making a re-emergence disguised as “below minimum standard” (ACARA 2010). There is agreement that dwelling on the positives in student performance is a means to developing a positive self-concept of ability.

Parental expectation as perceived by the student can work to both enhance and detract from educational attainment. Where student perception of ability and parental expectation closely align, optimum outcomes in the development of educational attainment might be expected (Brookover et al. 1964). However, there is evidence that parental expectation above the ability and perception of the student may produce the better academic performance. Parents and children in low SES households tend to have lower expectation than those in higher SES households (Crosnoe 2001, Oakes 1995).

The third major psychological factor mentioned above is student educational aspirations. Aspiration does directly correlate with performance; students with higher educational aspirations do achieve better educational outcomes when compared with students of similar academic ability. For example, those students aspiring to enter university during the years leading up to entry are more likely to attain the appropriate Tertiary Entrance Score (TES) when compared with students of equal ability and not sharing the same educational aspirations (James 2002). Although there is a link between parental and student aspirations, it is the students’ aspiration that has the greatest effect and this seems to be especially so for girls (Entwisle et al. 2007). Boys are less likely to have clear or positive educational aspirations compared with girls of equal academic ability and the difference between the genders becomes more pronounced for youth from lower SES households (James 2002; Entwisle et al. 2007). Some sociological studies that make the link between cultural backgrounds and students’ aspirations indicate that students from ‘Asian’ and ‘Middle Eastern’ backgrounds have a slightly higher correlation between the parental and student aspirations. This correlation of variables seems to produce educational attainment advantage based on outcomes achieved above expectation, controlling for ability (Fejgin 1995; Park 2007).

Although there is debate as to the strength of the effect of socio-economic factors on the development of psychological factors influencing the development of educational attainment, it is clear that psychological factors are a strong influence and in particular self-concept of ability. This suggests that students from all SES backgrounds can develop sound self-concepts of ability.
if exposed to strong and appropriate family relationships and skilful educators. It should be noted though, that it is more likely that a student in Australia will experience strong family relationships and have exposure to skilful educators as the SES of the family unit rises.

**Educational structures, educational attainment and SES**

In the Australian context, children from high SES households are more likely to be educated in a school which has a strong and positive learning culture, is well-resourced and has better quality teaching (Lamb & Teese 2005). The higher the SES of the Australian household, generally the greater the expendable income and therefore the greater the access to a range of choices in school education. It is no coincidence that the highest concentration of high fee-charging private schools is located in the northern suburbs of Sydney where the highest levels of SES are also found. Families in high SES areas with choice seem to believe that higher levels of educational attainment may be available to their children if they can access high fee-charging schools. The perception of educational attainment advantage being ‘user-pays for access’ may be a growing phenomenon in Australia and be spreading somewhat to households of lower SES, as is evidenced by the significant growth in the number of low to mid fee-charging independent schools in middle and lower SES districts (Thomson & de Bortoli 2007).

Beyond superior capital resources, schools in the United States located in areas of higher SES are also more likely to offer a learning culture more suitable to quality education due to the nature of the school community they attract (Rumberger 1995). This is certainly true for the student population but may also extend to the teaching population. For example there is evidence that Australian schools located in lower SES regions are staffed by a significantly higher proportion of temporary teachers, overseas trained teachers and inexperienced teachers who may still be in the development phase of their own learning (Lamb & Teese 2005). The teaching skills of classroom management and the ability to appropriately vary pedagogical technique are areas that are developing in the early years of teaching. These ‘higher order’ teaching skills make a significant difference to the learning occurring in the classroom (OECD 2009b). Research conducted by Scheerens and Bosker (1997) and Cooper (1979) indicates that appropriate positive corrective feedback and reinforcement are the classroom skills that result in the greatest improvement in student performance. These skills in particular rely on the ability of the teacher to develop appropriate relationships with their students; a skill that is often beyond the ability of the early-career teacher.
Students attending schools located in higher SES locations are more likely to have a positive self-concept due to their existing social status as a consequence of family and parental social status but the relativity of the self-concept within this micro-community must also be considered (Csikszentmihalyi & Schneider 2000; Oakes 1995). Although a student might have a heightened self-concept due to comparison with the broader community, this may be eroded by self-comparison within the micro-community in which the education occurs. Where students with low self-esteem compare themselves with peers in the areas of social capital and academic ability they may detrimentally affect their educational attainment due to a further lowering of self-esteem due to these ‘local’ comparison and competition within the school cohort.

**School Culture**

The effects of positive school culture on student ‘learning gain’ (educational achievement beyond expectation) are significant. Of all school effects, the influence of the academic culture would seem to be the most significant (Goldstein 1996; Marks et al. 2001; Groundwater-Smith & Kemmis 2004). Although it is extremely difficult to conclude which factors make the greatest difference in building a school’s effectiveness in the provision of educational attainment, there is agreement that effective teachers make a difference and that good teachers are more likely to be effective in schools with good learning climates, solid teaching and learning structures, good leadership and where there is emphasis on the development of positive student self-concept (Hill & Rowe 1996; Scheerens & Bosker 1997; Fullan 2001; OECD 2007).

Although there may be a direct correlation between combined student household SES and what might be termed the socio-economic status of the school, neither is the major driver of school culture, refer to Figure 2.2 (Kreft 1993).
Although there are many examples of Australian schools with positive school cultures in geographical locations of low SES, schools with positive academic climates become more prevalent as the SES of the school population and geographic location rises. It has been concluded by a number of researchers that under current funding structures, positive school culture is more easily established in higher SES schools in Australia (Teese as cited in Tomazin & Nader 2009, Lamb & Rice 2008, Gonski 2011). The recent introduction of the Australian National Partnerships, based on ‘funding the need’, may help in addressing this anomaly in Australian education provision (COAG 2009b). However it should be noted that higher spending on education does not automatically improve outcomes. Empirical analysis of OECD PISA results shows little correlation between spending quantum and average student performance (OECD 2009b) when comparing countries. It is vital to determine the factors of influence on learning and this is particularly true in low SES situations (Lee et al. 2002) although this is largely beyond the question posed by this thesis.

18 Funding distribution to Australian Schools is most frequently and crudely based on a student per-capita distribution formulae.
Curriculum, its link to social capital and its use in Australian schools

Burgess (1983) argues that students from different social backgrounds have different relationships to the curriculum, both in terms of subject selection and of outcomes, a fact also noted by Goodson (1993). This is particularly important in Australia, which, unlike many other high achieving countries in the OECD, presents students with a relatively broad choice of curriculum options (OECD 2007). In a number of non-English speaking cultures, in particular, the content of the learning and prescribed pedagogy can be quite rigid with little subject choice. In these countries, teaching programs (as we know them in Australia) are set and delivered against a predetermined timeline and assessment regime which is set by the state or other institutional authorities outside the school. In these circumstances, curriculum, syllabus and program are close to synonymous. The effects of socio-economic status on schooling and educational opportunity in such systems may be somewhat offset by the consistency of the content and the rigidity in delivery of the ‘curriculum’ (Smith 2000). By contrast, in Australia, I would argue that the effectiveness of the curriculum is significantly reliant on the quality of educators and systems with the capacity for continuous adaptation, reorganisation, and provision through the use of a range of appropriate pedagogies (refer to Figure 2.3).
This thesis prefers to embrace the definition of Kerr where he defines curriculum as, “all the learning which is planned and guided by the school, whether it is carried on in groups or individually, inside or outside the school” (as cited in Kelly 1999, p. 10). If this definition is accepted, the place of the teacher is central to the success of the process because the learning and the child, rather than the content, become the focus of the curriculum, (OECD 2007). Education therefore becomes the development of the young to enable them to rightly take their appropriate place in civil society; a process which is critical to improving the situation for those found in low SES communities.

This is particularly important for young people who do not bring with them the skills, dispositions and beliefs needed to negotiate the curriculum. These are attributes defined as “habitus” by Bourdieu (1986) and derived from the cultural capital available to the student from
the home background. Rather than depicting those cases where the cultural capital of the family is limited and the habitus of the student does not facilitate confident and effective interactions with the structures of schooling and curriculum as some form of deficit, Bourdieu would argue that it is the responsibility of the school and its teachers to provide these to that student, rather than simply assuming they are already there (Bourdieu 1986). However it must be acknowledged that there may be inherent limitations that the school may find impossible to overcome.

‘‘Academic capital is in fact the guaranteed product of the combined effects of cultural transmission by the family and cultural transmission by the school (the efficiency of which depends on the amount of cultural capital directly inherited from the family).’’

(Bourdieu 1986, p. 23)

The focus that this places on the classroom does not, however, absolve systems of responsibility for providing a broad and inclusive curriculum which meets the needs of those seeking to go to university and makes this accessible to all students regardless of socio-economic status, but also provides effective pathways to those whose pathways is not to university (Tesse & Polesel 2003; Vinson 2004). It is for this reason that this study will focus strongly on the role that vocational programs play in NSW Catholic schools in providing effective pathways to the range of learners which modern schools must now accommodate, particularly those from disadvantaged backgrounds (Polesel 2008).

It can be argued that the curricula, the pedagogic practices and the assessment practices experienced by most students in the senior secondary years of Australian schooling are more likely to be reflective of the selection and sorting needs of universities than the needs of the full range of students themselves. Students with less academic ability therefore may become marginalised as the emphasis drifts towards content and away from student development (Hattie 2009). Although high quality syllabuses allow access for students of all levels of ability, the access may be somewhat controlled by its lack of recognition of the range of possible student outcomes and their measurement. Students learn very quickly how success is measured and if emphasis is not placed on the range of pathways they are likely to experience, testing and results can very quickly become the focus of their curriculum engagement, with the effect of disengagement and non-completion for significant numbers of young people (McFadden & Munns 2002; Masters et al. 2009).

Whilst schools and teachers continue to be judged on the relative achievement of measurable student outcomes, there will be compulsion for teachers to adjust their pedagogy towards
student preparation for the assessment of measurable outcomes, such as NAPLAN, Basic Skills, School Certificate, Higher School Certificate, PISA and TIMSS. The achievement and recognition of these outcomes may be important for schools seeking to locate themselves successfully in a market-driven educational context, but may not be providing students with the broad range of opportunities and pathways required in a mass secondary system. Furthermore it may not be addressing the learning needs of students from low socio-economic status backgrounds (Richardson 2004).

Schools, teachers and students interact in a complex manner to determine the subject choices available to young people (Goodson 1983). Schools might determine offerings on perception of suitability or need; teachers might adapt delivery to accommodate the perceived ability and interest of students, whilst students might choose or engage with curriculum based on the perception that may be instilled in them by school, teachers, other adults of influence and the family. From research conducted by Teese and Polesel (2003) in Victoria, there is a direct link between subject choice in the senior years and the SES of the household in which the student resides. This research also found that students choosing the subjects which confer advantages in university application and selection processes were in fact achieving higher results as measured by the university ENTER score, a ranking measure based on achievement and used by the universities for selection of students. My thesis will investigate whether these links are also apparent for students in NSW Catholic schools.

It is argued that school systems with significant educational differentiation (tracking) often show significant social segregation between tracks, attracting the argument that tracking enhances social inequity (Oakes 1995). This suggests that the potential for vocational options in the upper secondary curriculum to aggravate the effects of social selection must also be considered carefully. Reforms to the education systems of Scotland and Sweden reducing educational differentiation (tracking) seem to have also reduced socio-economic inequities (Hout & Dohan 1996 as cited in Marks 2005). Although the German system displays marked social selectivity, it is interesting to note that when the tracking occurs many students with poorer language skills (non-German background) are labelled as having learning difficulties and prevented from accessing the more academic tracks (Werning et al. 2008). In this instance, a language deficit is considered to be synonymous with lower academic ability, forcing students of non-German origin into the vocational and work-based learning streams. This may explain why social background explains up to 28 per cent of the variation in the 2000 and 2003 German PISA results. By contrast Canada and Finland showed less than 10 per cent variation as a consequence of social background (Prenzel et al. 2007).
If academic ability is so strongly linked to the possession of family cultural capital, as argued by Teese (2000) and Bourdieu and Passeron (1977), and it is this academic ability which strongly influences subject choice in the upper secondary curriculum, then serious issues of equity are raised. If further educational attainment at senior school or university is dependent on both access and performance in selected subjects which are beyond the reach of students from low socio-economic status backgrounds, this is a form of social exclusion. If teachers choose to place students in particular subjects or learning areas, based on the social status of the learners, then this too is social exclusion.

Levitas et al. (2007) define social exclusion as;

“... a complex and multi-dimensional process. It involves the lack or denial of resources, rights, goods and services, and the inability to participate in the normal relationships and activities, available to the majority of people in society, whether in economic, social, cultural or political arenas. It affects both the quality of life of individuals and the equity and cohesion of society as a whole.”

(Levitas et al. 2007, p.9)

Studies conducted in Colombia (Rangel 2006), Israel (as cited in Rangel 2006) and Sweden (Rephann 2002; Yang-Hansen 2008) suggest that the range of post school options available to students grows as their SES rises. This is not necessarily due to the opportunity that financial security might offer or due to intellectual advantage but due to the ‘life-option’ vision that the family generates in the child. Adolescent life-vision is generally predictive of occupational attainment as adults (Hotchkiss & Borow 1996 as cited in Diemer & Hsieh 2008). It would seem that youth from mid and high SES households have wider and richer vision and access to better knowledge of post-school pathways. In their study in the United States, Baker and Stevenson (1986) suggest that this vision is a direct consequence of the experience of the parents (particularly the mother) with respect to post-school options themselves, and in particular higher education.

With the introduction of Vocational Education and Training (VET) into Australian schools there was an almost simultaneous increase in senior school retention rates, particularly for students from low SES households (Karmel 2007). Although the retention increase could have been as a consequence of increased youth unemployment in the 1990s, it has been argued that VET curriculum was more or less exclusively for those from low SES backgrounds who were more likely to be of generally lesser academic ability (Crump & Stanley 2005). Although historically this perception of a linkage between low SES and academic performance may have been true, it could be debated that VET introduced under this perception automatically reinforced its low
status. VET curriculum was therefore less attractive to those with academic (intellectual) ability or of low interest to those from other than a lower SES background. Teese and Polesel (2003) make the observation that this phenomenon seemed to apply to almost all subjects (VET and non-VET) introduced into the Victorian senior school curriculum over the concluding two decades of last century. Although broader social access to a senior education had advanced over this period the ‘exclusive’ access to higher order academic (intellectual) curriculum was maintained (Teese & Polesel 2003). It is for this reason that the analysis of vocational programs in NSW schools is given considerable space in this thesis. The potential for social selection in vocational programs identified in much of the research (e.g. Polesel 2008) needs to be weighed against its potential to increase school engagement and retention. Early school leaving deprives individuals of access to higher social status reserved for those completing school and most often signals a dislocation from the life-long learning paradigm.

“Early school leavers are also more likely to engage in crime, have poorer health, have lower rates of intergenerational mobility and lower rates of political participation”.

(Rumberger 1987, p.115)

Governments at all levels in Australia promote policy aimed at increasing Year 12 retention as the means by which to raise levels of skills attainment and by inference the economic capital of the nation (Rudd & Smith 2007a, 2007b: COAG 2009b). However there are critics of this policy. While it may be having an impact on retention, there are concerns that retention, without curriculum reform, will not assist students in the transition to employment. Moreover, if the focus remains on the provision of a ‘university-entry’ curriculum, in the face of evidence that the majority of school completers do not go to university, then this suggests that retention will not greatly assist those students who would have otherwise left school. Other strong critics of such a policy specify that the emphasis must be on the needs of youth, not that of the economy, and describe such policy as ‘social exclusion policy’ (Simmons 2008; Keep 2006).

Furthermore, the percentage of Australians in employment with a post-school qualification increased from 42 per cent in 1992 to 54 per cent in 2008 (Karmel 2008b), indicating that for those without qualifications, the jobs market is diminishing and particularly for the young and early school leavers.
`Figure 2.4: Youth unemployment in Australia over time

With continued casualization of the Australian workforce, there are fewer full-time and permanent positions and those available are increasing less accessible to youth 17 to 19 years of age. Early school leavers, in particular, are finding access to employment increasingly difficult. As Figure 2.4 shows, rises in unemployment for youth at times of economic recession hit the younger worker hardest and recover very slowly as the economy improves. This pattern suggests that youth constitute the most vulnerable sector of the workforce.

This suggests that the upper secondary curriculum needs to be able to cater for the range of young people now staying on until the final years of schooling. Yet the evidence suggests that much of the senior school curriculum is founded on social selection and university preparation for a minority of the cohort (Teese & Polesel 2003). This suggests the senior school education does not benefit all students equally. Dockery (2005) concludes that there is no significant benefit from contemporary school completion in terms of improved labour market outcomes for students that might be described as ‘non-academically inclined’ (Dockery 2005). For school completers (without university experience) joining the labour market, their outcomes are not

(Data source: ABS cat. no. 6291.0.55.001.)
better and in fact sometimes worse than early school leavers within the same contexts
(McMillan & Marks 2003). These research findings suggest that there is a particular need for
more appropriate curriculum for those not wishing to progress directly from Australian schools
to university, particularly in a policy climate of improving retention.

If retention is to be raised (ISCED 3 as the minimum achievement\(^{19}\)), it would seem that it is
those from lower SES backgrounds that need to be targeted in any reforms instituted by schools
or government. Karmel, Mark & Nguyen (2009) indicate that qualifications below Certificate III
(ISCED 3) are unlikely to assist employment prospects in the Australian employment market.
Because Australian employers do understand the qualification system well, they are fully aware
of the ability of prospective employees based on qualifications (Hoeckel et al. 2008) and
qualifications below Certificate III seem unattractive to them. If students from lower SES
backgrounds (generally less academically inclined when entering Year 11) are to be given a
realistic choice to stay at school at this point, it may be that significantly more ‘energy’ needs to
be expended with these children earlier in their education experience in order to prevent the
greater likelihood of low educational achievement and more limited pathways experienced by
this group.

The research suggests that low levels of literacy and numeracy need to be addressed much
earlier than in secondary school (Thomson et al. 2011). Similarly, if issues of disengagement in
the earlier years of secondary schooling were addressed before they become embedded, a
university-oriented curriculum might be a more realistic ‘choice’ for these students (McFadden
& Munns 2002). McMillan and Marks (2003) report that these types of school reforms (dealing
with the root of the problem earlier in the student’s trajectory) seem to be having a greater effect
on increasing school retention than do attempts at addressing SES directly.

In summary, it seems that the curriculum presents as a hierarchy in perception and in fact. The
research suggests that students from high socio-economic status backgrounds interact differently
with the curriculum than do those from low socio-economic status backgrounds. In the context
of considerable subject choice in the Australian upper secondary curriculum, this means that
students from different backgrounds choose different subjects and achieve outcomes of a very
different order. This thesis examines the extent to which this is true in the context of NSW
Catholic secondary schools in the modern era.

\(^{19}\) Australia may be setting retention targets below this level due to the lack of will or structural resource
to provide education to this level for students not wishing to follow a ‘traditional’ university path.
Chapter 3

Research methodology

The review of the literature, as provided in Chapter Two, allowed me to approach the development and analysis of data files with an appropriate theoretical understanding of the relationships between curriculum, student engagement and achievement and equity principles for student access, performance and social inclusion. The thesis development and data analysis followed a logical sequence as outlined in Table 3.1.

Table 3.1: The thesis development and data analysis process

<table>
<thead>
<tr>
<th>Phase</th>
<th>Description</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The Board of Studies (BOS) participation and performance data were sourced and permissions were obtained as necessary. The data analysis software(^{20}) was purchased and loaded to enable skills to be developed to ensure its accurate use.</td>
<td>June to September 2009</td>
</tr>
<tr>
<td>2</td>
<td>The Literature Review was a critical aspect of the methodology. It not only provided significant background but introduced alternatives for the methodology in respect to the approach and the analysis techniques to be used in the research.</td>
<td>September 2009 to June 2012</td>
</tr>
<tr>
<td>3</td>
<td>The BOS and the ABS data were combined in SPSS and the data prepared for analysis. The accuracy of these data and the analysis processes were examined. This was achieved by using the SPSS dataset and processes to replicate existing and public data records and comparison for accuracy. The accuracy of the SPSS data file was also confirmed by comparing outcomes produced through</td>
<td>September 2009 to May 2010</td>
</tr>
</tbody>
</table>

\(^{20}\) The thesis relies on three software programs: SPSS17, Board of Studies RAP and Microsoft Excel 07 and 10 (which allow unlimited rows and columns of data).
alternative data analysis software such as BOS RAP\textsuperscript{21} and Microsoft Excel.

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Time Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Data analysis using mostly: cross tabulation, frequency and regression analysis (Refer to Frequency Table, Appendix 2)</td>
<td>March to November 2010</td>
</tr>
<tr>
<td>5</td>
<td>Refinement of approach and hypothesis as potential relationships became evident.</td>
<td>June 2010 to March 2011</td>
</tr>
<tr>
<td>6</td>
<td>Further data analysis to explore hypothesis involving: frequency correlation, crosstabs, comparison of means, scatter plots, regression analysis and multivariate analysis.</td>
<td>January 2011 to March 2012</td>
</tr>
<tr>
<td>7</td>
<td>Linkage of findings to survey data (these data provided by ACER for analysis within this research) to analyse, confirm and explain findings from quantitative research to explore implications and to develop recommendations.</td>
<td>April 2011 to March 2012</td>
</tr>
<tr>
<td>8</td>
<td>Finalise the drafting of the thesis.</td>
<td>October 2011 to July 2012</td>
</tr>
</tbody>
</table>

The research brought together expansive data files containing NSW Catholic school student participation and performance data linked to ABS Census Collection District data for students as they progressed through senior school study from their 2006 School Certificate to their 2008 Higher School Certificate\textsuperscript{22}. These data were used to explore correlations between indicators of equity with the following variables: curriculum type, senior subjects, student engagement and performance, student perceptions, parental and household information, school characteristics, school (teacher) perceptions and destination information. Individual senior student (Years 10, 11 and 12) enrolment and achievement data files for students from NSW Catholic schools obtained from the NSW Board of Studies were geo-coded to Australian Bureau of Statistics (ABS) Census Collection District (CCD) data and matched with survey data for specific

\textsuperscript{21} BOS RAP (Board of Studies Reporting and Assessment Program) is analysis software produced by the Board of Studies NSW and available to NSW schools and education authorities.

\textsuperscript{22} The thesis would have liked to explore more broadly by comparative analyses all-of-State and other schooling sector cohorts but privacy legislation and lack of data access prevented these approaches.
Catholic schools. The survey data are a subset of data collected through a project contracted by the State of NSW to the Australian Council of Educational Research (ACER). Appendix 3 provides copies of the survey instruments.

These combined data have enabled an intensive quantitative and survey analysis of the thesis question: ‘Do NSW Catholic schools deliver equitable education for senior school students?’.

Without a detailed household address that includes street name and number with suburb, it is not possible to accurately geo-code the household for use in the study. During the geo-coding process the following were excluded to ensure an accurate sample for the analysis phase:

- Students without addresses
- Students with addresses that included Post Office (PO) boxes
- Students with addresses outside Australia

From the total sample ($N=23,221$), 398 (1.8%) students (cases) were removed due to these criteria.

After the establishment of these geo-coded student participation and attainment data files, a series of tests were conducted to ensure the accuracy of the process used to build the data files. Student enrolment and performance data were analyzed using alternative software programs (BOS RAP$^{23}$ and Microsoft Excel) and frequency results compared with the outcomes produced using SPSS17 to explore consistency and validity. Testing for the reliability of the data files also included a cross-checking of student individual identifiers to ensure the results were inclusive of the appropriate students as recorded in alternative data files.

Preliminary analysis of these data files using cross-tab and case summaries showed some outliers when mean school performance was cross-tabulated with mean school SES. Investigation of what seemed to be such ‘out of pattern’ results indicated that all ‘outliers’ were schools with very low case numbers and in most instances were also ‘specialist’ schools of some description. These schools produced low case numbers in cells resulting in irregular (and most probably invalid) outcomes. In order to maintain reliability in the analysis process, it was decided to remove schools with fewer than 15 cases (students) in a single year group.

This exclusion involved 5 small schools:

- Two special schools with HSC enrolments.

$^{23}$ This reporting and analysis (RAP) program, produced by the Board of Studies (BOS) NSW, enabled simple (raw number) checking of the SPSS dataset.
• Two Christian Orthodox schools that have specialist enrolments.
• One school where the bulk of the enrolments (greater than 95%) are overseas full-fee paying students and not Australian Citizens. After removing these students (that could not be geo-coded) the remaining group had fewer than ten students.

Removing the students from these five schools reduced the number of cases by 63 students (0.28%). This small reduction was accepted as appropriate to enable greater validity overall.

During testing it was also noted that an unexpectedly large percentage of the total student group (97.8%) was enrolled in the Key Learning Area (KLA) grouping for History Society and its Environment (HSIE). Analysis showed that the decision of most Catholic schools to insist on the study of a religious studies subject for the HSC resulted in almost all students being counted as HSIE candidates. Three HSC religious studies subjects: Catholic Studies, Studies of Religion 1 and Studies of Religion 2 were removed from the HSIE KLA grouping and were combined into a new subject grouping. The thesis refers to this new grouping as KLA Religious Studies.

After the reliability and validity of the file (N=23,221) were confirmed, a detailed frequency analysis was conducted to determine potential significant links between variables. Appendix 2 provides a record of the first level of frequency and crosstab analysis conducted in phase four of the methodology as shown above. Crosstab analysis involving dependent and independent variables enabled a ‘simple’ picture of student enrolment and achievement to be recorded. The process enabled the discovery of the potential influences of socio-economic status and its related components. Subsequent multiple variable frequency analysis allowed the researcher to determine the possible effect of the influences and on occasion the comparative strength of the effect was determined using regression analysis.

The validity of using the SEIFA Index for Relative Socio-economic Advantage and Disadvantage was tested by examining the results of crosstab analysis of its components against independent variables within experimental groups. The outcomes of the analysis of components were compared with those resulting from the use of the compiled SEIFA Index. This allowed pre-testing of indicators of Socio-economic Status prior to the application of the indicator to the broader data files. The methodology was tested through analysis of frequency counts found in the data and these results became the basis for establishing the epistemology for the broader research. It is noted that different aspects of the indicators of the concepts (such as components of the SEIFA Index) were considered in the testing stage and as expected for most quantitative research, it was possible to rely on a single indicator of most concepts. As with the research processes used by others in related studies, a single indicator of concept (such as SEFA Index
for Relative Socio-economic Advantage and Disadvantage) was quite adequate for producing reliable results due to the consistency of the measure (indicator) itself (Marks 2006; Marks et al. 2000; Marks et al. 2001; James 2002; Jones 2002).

Phase four of the research concentrated on analysis of which subjects students in NSW Catholic schools take and where social variables (i.e. household SES) influence this process. Where household SES was deemed to be an influence, further breakdown allowed the determination of which aspects of family circumstance had the strongest correlation. Achievement, as measured by School Certificate (SC) and Higher School Certificate (HSC) subject results, was explored for correlation with SES. Aspects of students’ gender, household geographic location, school type and household influences as measured by the ABS CCD data were studied for patterns and associations that required noting and in a number of instances, further exploration. As a study of this nature has not been previously conducted with NSW Catholic schools’ data, the findings, even at this relatively simple level of analysis, will be of value to policy developers, school authorities and school principals as current policy is largely based on assumption and anecdotal reference.

The data used for phases, three, four five and six of the research methodology were at the individual student level and include ‘all students’ (N=23,221) as appropriate and detailed above. With the sample size (97.92%) only slightly smaller than the population of the study, reliability and validity are assured. This fact, coupled with appropriate and effective techniques of analysis, has produced valuable and accurate results. As the thesis has used a near ‘perfect’ probability sample, the predictive implications are sound. Recommendations relying on this data should be considered credible.

“Although reliability and validity are analytically distinguishable, they are related because validity presumes reliability; if your measure is not reliable, it cannot be valid.”

(Bryman 2004, p.74)

The positivist approach and initial data analysis provided an objective picture of the social reality in NSW Catholic senior school education provision. On occasion these data outcomes suggested that the hypothesis be further analysed with additional and alternative statistical approaches. Later phases of the research invited distinctive epistemological and ontological positions entailing the devising of measures of the concepts (operationalisation) (Bryman 2004). The definition and understanding of socio-economic status used in this study are provided in chapter two but suffice to indicate that the initial data correlation relied on measures provided through the Australian Bureau Statistics (ABS) to ‘unpack’ the data for hypothesis to
be established. These measures included: General Recurrent Grants Score (GRGS) SES measure, GRGS Occupation dimension measure, GRGS SES Household income dimension measure, GRGS Household income based on families with dependent children, GRGS Education dimension measure, SEIFA Advantage and disadvantage, SEIFA Economic resources and SEIFA Educational occupation (ABS 2008a).

Using SPSS17 and Microsoft Excel, the analysis uses descriptive statistics to report participation and performance in selected curriculum areas broken out by student background characteristics. It also uses correlation measures to assess the strength of these relationships. These techniques proved necessary to explore the hypothesis and to move beyond theory towards conclusion.

The student survey data component of the research comprised analysis of data from 1566 Catholic school students collected by phone survey – a sub-set of an Australian Council of Educational Research (ACER) 2010 data collection. A contract between the NSW Board of Vocational Education and Training (on behalf of the three NSW school sectors) and ACER required ACER to conduct research into NSW school student aspirations and destination. The purpose of the ACER research was to examine senior NSW students’ expected educational and occupational pathways and their alignment with parent and school attitudes and expectations. This research also explored: influences on subject selection, early school leaving, plans for further study, subject level and field of study among those in post-school study or training, employment, relevance of School Certificate results for post-school training and employment, unemployment and the main activities of young people not in full-time work education or work.

The contract and approvals allowed for the data files pertaining to NSW Catholic schools to be released for use in this research. Three data files containing only Catholic schools’ data were provided to the researcher to conduct an analysis, namely: student survey 24 responses (N=1566), parent and carer survey responses (N=647) and school personnel survey responses (N=1184) from a sample of catholic schools (N=16, 12.8%).

The original ACER sample contained data from all school sectors (students N=9958) at the relative proportions of state enrolment (for the Catholic sector at about 24%). The sample was drawn using a two stage cluster design; this allowed schools to be determined which in turn allowed the students and their parents to be matched to the school personnel responses. Within school groups a random sample of students was surveyed with a sampling interval equal to the

24 The student survey was an adaption with permission of the On Track student survey of the Victorian Department of Education and Early Childhood Development.
relative size of the year group within the school and year group. Students and parents and carers were surveyed by phone interview and school personnel by email survey.

The student file contains responses from students in Years 10, 11 and 12 (2009) as well as students that had left school from these particular cohorts. It was neither possible nor necessary to match these data case for case with the quantitative data files as these files were constructed from data for the 2008 HSC cohort.

The students in these analyses are either senior school students in their final three years of schooling or youth who have left school. These data enable some ‘collective group’ research due to the connection of the data files through the school identifier. The qualitative aspects of these data add significant value to the understanding of the findings from the quantitative aspects in the research process. Questionnaire responses contain aspects of students’ perceptions, values and judgments for those who have completed the compulsory years of schooling and for early leavers in the first two years after leaving schools. The study includes critical information about school non-completers, post school study and employment, social attitudes, student satisfaction, student aspiration, student self-esteem and other ‘individual’ attitudinal and outcomes information. An equity study of post-compulsory education engagement must include the students who ‘fail’ to proceed to benefit from this opportunity.

These survey data were analysed by this researcher in order to address questions raised through the analysis of the quantitative student data files. Data variables were linked to indicators of students’ enrolment, achievement and socio-economic status. This process proved effective in transforming response classification information into coded data (quantification). By coding this information effectively it has transformed survey response data into appropriate numerical data to facilitate the quantitative analysis of these data against the hypothesis. Testing for relationships between variables was conducted with a range of statistical techniques, with interpretation of the results as well as the analysis of the relationship between concepts and indicators being included in the comprehensive report of participation in post-compulsory schooling by students in NSW Catholic schools.

Where possible, all concepts are converted into measures to employ quantitative research techniques where the concepts appear as independent or dependent variables depending on which aspects of the social world are in need of delineation. Precise estimates of the degree of relationship between concepts (such as SES and measures within) are possible due to the use of

25 ‘Critical’ in that these issues are central to answering the question of the thesis. An equity study needs to be inclusive of the students who failed to appear in the HSC data, and to ask questions about longitudinal outcomes beyond the school.
precise indicator(s) that are directly aligned to concept and hypothesis. The researcher did consider if a single indicator of a concept was sufficient when seeking to develop a measure for the concept and as discussed above, multiple (combined) indicators were used on occasion to ensure validity of the research process and findings (e.g. SEIFA Index of Relative Socio-economic Advantage and Disadvantage). Where research moved beyond the single indicator, care was taken and an explanation provided to ensure that all ‘designerism’ indicators were appropriately constructed for the statistical task (Crotty 1998).

It became necessary to further explore instances of high and low equity provision (as established in the earlier phases of the research) by the introduction of direct survey methods to further research the reasons for the established correlations. It is hoped that this final step provides information that may enable policy developers to better provide opportunities to enable higher equity provision within the NSW Catholic schooling sector at the local level.

**Thesis presentation and reporting the findings**

The thesis has been presented using the academic conventions of the University of Melbourne and is respectful of higher-degree requirements.

The introductory chapter is presented to confirm the context for the study and the relevance of the thesis question. It provides a brief historical context for the study and defines its purpose and significance for the NSW Catholic school system. The thesis question is posed linked to the hypothesis developed from the data analysis.

Chapter two is very important to the study as the hypothesis has been grounded in previous research and a sound understanding by the researcher of the concepts of student achievement, personal development, academic achievement and their connection to the challenge of being born in a low SES or otherwise disadvantaged family. Equitable provision in Australian education has been the topic of considerable research, but research involving the Catholic school sector in NSW has been limited. This research will help to fill the existing gap for policy developers, system authorities and school leaders in the sector.

Analysis of the relationships between variables was conducted to refine the hypothesis in order to explore links to established theoretical concepts as presented as part of the literature review in Chapter two. This process produced a number of chapters employing quantitative analysis. The interpretation and presentation of these chapters has been done without the use of ‘jargon’ to allow access to the research findings for readers from the non-research domain. It is hoped that
this approach will allow engagement with the findings by a range of readers and help to invite all readers to deduce important and robust conclusions in addition to those presented within the thesis.

The reporting of research findings involves an appropriate combination of text and tabular and graphical presentation. The intention is to provide a comprehensive ‘picture’ of senior school education in the NSW Catholic sector prior to more deeply addressing equity issues exposed within the analysis. Readers are provided with conclusions but hopefully will also be able to draw conclusions themselves from clearly provided information drawn from the analyses in phase three. The hypothesis and the further analysis of theoretical considerations highlighted in the literature review draw the thesis towards an explanation of why the NSW Catholic sector could consider doing more to address inequity in the senior years. By analysing the survey data in particular, the thesis explains the findings before the presentation of recommendations and conclusions.

**Conclusion:**

The thesis is the product of a process managed over three years (refer to Table 3.1) with year one being mostly a preparatory period of statistical skills development, data file development and testing. Years two and three were a period of research where data brought together was analysed, the hypothesis developed and confirmed, methodology tested and implemented, findings reported and conclusions drawn.

It is anticipated that the thesis will take its appropriate place amongst the listings of academic works but it is also intended that it may add to the discussion and reflections of policy developers and Catholic school leaders in particular. One of the strengths of Catholic education is the relative autonomy of the school where the principal evaluates, strategises and works with the local community to achieve what is best for that community (Canavan 2006). This thesis may provide access to a vision beyond the horizon of local circumstance that might benefit the longer term planning for the local educational environment.

> “Catholic Schools must remain embedded in their local parish and regional school communities.”

(Canavan 2006, p.4)
Chapter 4

NSW Catholic schools, curriculum and students in context

This chapter concentrates on relating the scene in which the research is situated. It will describe the subject of the study: the students, the schools and the contemporary educational climate of New South Wales (NSW) and Australia. The role of the senior years of education is presented within the context of the NSW secondary education environment and the constraints and structures are described within this setting.

A combination of NSW Board of Studies (BOS) requirements and the desire for university entrance strongly influence the patterns of study for individual students in the senior years (Years 11 and 12) in NSW schools. This was true in 1995 (McGaw 1996) when the Higher School Certificate (HSC\textsuperscript{26}) underwent extensive review under the leadership of Professor Barry McGaw. The revision of the HSC in 2000 did attempt to release the HSC from the pressures of university entry requirements but this may not have been achieved. Research suggests the NSW HSC enrolment still has many students with unrealistic university entry aspirations (Helme et al. 2005).

The HSC BOS pattern of study requirements necessitate a student to satisfactorily complete a Preliminary (Year 11) study pattern comprising at least 12 units\textsuperscript{27} and a HSC pattern of study comprising at least 10 units.

Both patterns must include:

- at least six units from Board Developed Courses (subjects) (BDC\textsuperscript{28});
- at least two units of a Board Developed Course (subject) in English;

\textsuperscript{26} The HSC is the school exit credential in NSW. It is awarded after the successful completion of thirteen years of schooling, kindergarten to year twelve. The results achieved in this year determine which university courses will be available to the individual student, i.e. the higher the achievement the greater the range of university courses available for selection.

\textsuperscript{27} Unit in the context of the HSC is roughly equal to sixty hours of class time (face to face).

\textsuperscript{28} Syllabus developed and published by the New South Wales Board of Studies.
• at least three subjects of two units value or greater, either Board Developed or Board Endorsed Courses (subjects) (BEC\textsuperscript{29});
• at least four subjects and
• a student may count a maximum of six units from subjects in science in each study pattern.

(BOS 2005)

These well intentioned HSC enrolment requirements are an attempt (via policy) to influence student subject patterns beyond narrow or limiting choice. The HSC breadth of study requirements attempt to ensure for individuals a broader range of post-school pathways by preventing too narrow a selection of curriculum in the senior years. For the vast majority of students the policy results in a pattern of study which enables them to develop academically and to find some direction in regards to post-school destination (Evans 2005; McGaw 1996). There may be a significant group of students who are deterred from continuing at school beyond the compulsory years because of these requirements, given that New South Wales has one of the lowest rates of school completion of any state in Australia – 72.2 per cent in 2008 (ABS 2008b). For these students, there may be courses (subjects) that attract them yet the requirement to also enrol in aspects of curriculum from which they have already disengaged may have a tendency to ‘force’ them from school (Teese & Polesel 2003).

Australian society, schools and students view post-school destinations within a hierarchy; with progression to university clearly the most desirable and unemployment lowest in the continuum (Teese 2000). Other destinations in possible hierarchical order might include: the GAP year (overseas); fulltime non-university study; apprenticeship; part-time work coupled with part-time study; fulltime employment; traineeship; part-time employment (McMillan and Marks 2003). The order within the hierarchy may be contested but there seems to be general acceptance that student achievement at school can be judged by the post-school destination (Collins et al. 2000). The hierarchy may be simplistically applied by society and regrettably by some schools. Individuals that move along sound post-school pathways can improve social status not only for themselves but by association for their family and possibly even for their school and teachers (Bourdieu & Passeron 1977). For example, the whole household can experience a heightening of social status where one of the children is the first of their number to enter university (Rothman 2003). Schools celebrate the achievements of ex-students and the higher the recognition for the achievement, the higher the potential recognition (reward) for the school and

\textsuperscript{29} Course (subject) content is developed by a school or education system and registered with the BOS. The registration process includes the conduct of a quality and suitability analysis.
Schools in context

History of Catholic schooling in Australia and NSW

Australia from its earliest colonial years has been heralded as the ‘land of opportunity’ and in the eyes of many Australians this accolade is appropriate. Opportunity for the colonials was by way of discovery and access to previously unexploited resources. Although challenging for the first settlers of European heritage, the new nation signalled a strong future for the resourceful and for those of strong will and with raw enterprise. Agriculture proved to be the foundation of the infant settlement as lands proved productive and herds were established to produce excess for export. For decades, as the potential of agriculture was realised, growth and productivity continued to attract brave settlers from Europe to the land where ‘opportunity for all’ was expected and delivered to many.

Natural resources were discovered in the ancient land with the official discovery\(^{30}\) of gold in the 1850s and with it came the relative chaos brought by the potential of ‘instant’ wealth. Many did find their fortune in the ‘land of plenty’, but many hard luck stories also existed and men moved from ‘rich’ area to ‘rich’ area as new discoveries were heralded. These early days were days for the physically strong and for those with determination. Settlers were willing to walk hundreds of kilometres for a ‘hear say’ opportunity to establish themselves by ‘striking it rich’.

Through the ‘horse and buggy’ days of the 19th century, the young nation was a coalition of settlements of varying size and local governance. Although the law was that of the British Empire, the administration of law proved difficult in many areas, particularly where isolation and lack of constabulary enabled local ‘social arrangements’ to develop. One such development may have been the social exclusion of many non-European settlers and cultures including the culture and rights of Indigenous Australians who were looked upon by most settlers as sub-human. Many instances of genocide have been recorded as having occurred during this ‘rough’ period of Australian history (Moses 2003).

Education was limited to the skills needed to survive in a harsh land where self-made opportunities were rewarded and accepted. Formal education was not part of the offerings in most of the settlements and only the privileged could consider formal education for their

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\(^{30}\) It is likely it may have been discovered as early as 1823 near Bathurst NSW but kept secret.
children and this was often provided away from where the ‘fortunes were being made’, in the
largest settlements or off-shore in ‘mother England’. Religion was evident yet it divided the
settlement along social lines with the wealthy and the poor descendants of the ‘forced
emigrants’ segregated along Protestant and Catholic allegiances (Croke 2007). A generally
Protestant ruling class shaped the young country within isolated and politically separated
colonies.

Catholic education in Australia started with the establishment of a parish school at Parramatta
by a layman, George Morley, in the 1820s. The ‘system’ grew slowly, with roughly one new
school each two years until 1853 when the first Catholic secondary school was established
(Croke as cited in Flynn & Mok 2002 p.34). This model of ‘the educational need of Catholic
children being serviced by the Catholic community’ was the foundation of most Catholic
schools for the century and half to follow. Many Catholic churches established the parish school
and encouraged the support of the community with religious (priests and religious orders of
brothers and nuns) sometimes providing the staff necessary to enable these very low cost
schools to operate along-side government funded schools throughout the 1800s. Compulsory
primary education was instituted by the un-federated States through the 1870s and 1880s and it
was widely believed by colonial authorities at this time that the compulsory schooling
regulation would be the demise of the Catholic school in Australia due to the fact that only
State-run schools would receive funds collected through taxes (Croke 2007). However the
predominance of the Irish immigrants in the Catholic parishes and amongst the priests and
bishops at the time provided a resilience and unity that enabled Catholic schools to survive the
pressure that compulsory primary schooling brought. The Bishops’ answer for maintaining the
young and developing Catholic school system was the ‘importation’ of European religious 31 to
staff the schools and provide the religious connection that parents expected from the schools
that they were funding. Sectarianism flourished with Catholic bishops and priests ‘herding their
flocks’ towards the Catholic education institutions. These schools were largely servicing the low
socio-economic status immigrant population of which the Irish were the largest part (Luttrell
1996). The Irish church system of ‘educating your own’ was in effect replicated in the
Australian setting with the ‘parish’ very much being a combination of Church and school.

With the coalition of States forming the Commonwealth of Australia in 1901, came a
strengthening of the divide between the secular schooling system and what was viewed by the
newly established commonwealth government as the unhealthy religious schooling alternative
(Croke 2007). The evidence of racial and religious bigotry persisted well after the establishment

31 Religious includes Priests, Brothers and Nuns.
of the commonwealth. It was partly fuelled by the fact that the working class Catholic immigrants supported the Labor Party which was in parliamentary opposition. However this was to change both nationally and within state governments as the Labor party moved to power for the first time in the 1920s. Encouraged by the Irish bishops and parish priests, the low socio-economic status majority rallied in support of Labor and some would say moved to a position of relative power (Croke 2007). Limited public support for the more able of the poor was introduced by way of student bursaries for students attending ‘religious schools’ (Catholic schools). The support did lessen the burden on some of the ‘poor’ who until this time had fully funded the education of their children in their parish schools.

This stand-off between public and Catholic schools persisted through the first half of the 20th Century until it reached a political crescendo in the 1960s. By this time, Catholic schools were part of the landscape with significant growth during the period after the Second World War in particular (Luttrell 1996). Through opportunity offered largely by education provided in Catholic schools, Catholics were able to move into all levels of Australian society in the post-war period (Brett 2003). At this time Catholics comprised in excess of 25 per cent of the population. Although they generally possessed a strong political interest, they were not necessarily at this stage a mobilised political force. Like the situation at the turn of the century, Catholics largely aligned with the Labor party nonetheless were somewhat politically divided with Catholic representatives on both sides of politics. Although there was concern that hard won gains in the support of Catholic education may have been under threat in the 1960s and 1970s, this ‘soft’ political uncertainty in the Catholic community may have been the catalyst necessary for both sides of Australian politics to instigate policies in support of tax-payer funding for non-government schools, including Catholic schools (Hogan 1975).

This period of strong public debate and demand for public funding for Catholic schools continued for a further decade despite the establishment in 1973 of the Australian Schools Commission to provide more equitable financial support across all schools. The rights of Catholic schools to employ staff, enrol students and provide education based on ‘church’ policy (as opposed to exclusively public policy) were finally settled through a decision handed down in response to a High Court challenge in 1981 (Lawlor 2002).

This turbulent period of Australian educational history coincided with a similar period of Catholic Church history where religious orders experienced a rapid period of change in response to Vatican II. This refocusing of the Catholic Church coincided with a significant decline in the number of religious available to staff the very large system of Catholic schools established throughout Australia. With the public support, Catholic schools were able to cope with the shift
by employing appropriately qualified teachers to staff schools once fully staffed by religious.\textsuperscript{32} Over the last forty years of the twentieth century, the shift from religious to lay teaching staff\textsuperscript{33} in Catholic schools has occurred gradually and generally without compromise of the quality of education with the proportion of all staff who were religious shifting from 69 per cent in 1965 to fewer than 1 per cent in 2005 (Canavan 2006). The modern Australian Catholic schools sector educates almost one in five Australians in generally well equipped schools with appropriately trained teachers and sound administration structures (Bishops of NSW and the ACT 2007). The Catholic school is typically apolitical, and an established pillar of the Australian education structure. In 2012 the NSW Catholic school sector comprises 580 schools with 485,000 students. It is the fourth largest school system in Australia after the public school sectors of New South Wales, Victoria and Queensland. In New South Wales, Catholic schools are inspected and registered to deliver curriculum on behalf of the state by the NSW Board of Studies (BOS).

NSW Catholic schools are divided into twelve smaller systems (groups) by way of eleven Catholic Church dioceses and an additional group of about 45 schools owned and run directly or indirectly by religious orders of priests, brothers or nuns. Collectively, this large school system is supported by a central agency named the Catholic Education Commission (CEC) with each of the eleven dioceses supporting their system through a Diocesan Catholic Education Office\textsuperscript{34}. The CEC has an advocacy role as well as an indirect management role for the coordination of the system. It is interested in quality and efficiency in aspects of provision, opportunity and outcome (CEC 2008a). Issues of social justice, inclusion and efficacy are in part the responsibility of the CEC, through which public funding is established and managed. Catholic schools in New South Wales receive about seventy per cent of their funding needs through public (government) sources. The cost of running a system of this size is in excess of two billion dollars per annum.

Although Catholic schools do charge fees to the families of those that attend fees, the intention, throughout history of NSW Catholic schools has always been to make up the shortfall between external support (mostly governmental) and running costs. Fee collection has never been a means of producing any form of profit or to promote exclusivity (Bishops of NSW and the ACT 2007). Catholic schools do generally allow student enrolments from families that may be unable

\textsuperscript{32} Religious (Priests, Brothers and Nuns) teaching in Catholic schools were not paid a full wage but a stipend at a fraction of the cost of employing teachers. This enabled Catholic schools to run very efficiently on relatively low budgets. The move towards paid staff required significant financial adjustments in Catholic schools.

\textsuperscript{33} Non-clergy paid at the award rates.

\textsuperscript{34} In some dioceses this office is termed the Catholic Schools Office (CSO)
to commit to full fee contribution and in some cases they permit enrolment without fees. However, even with these policies, there is the potential for a relatively privileged group to be assembled within modern Australian Catholic schools. Catholic schools do service population areas of disadvantage as the very first Catholic school in Australia was established to do. However, the extent to which the modern Catholic school may have deviated from this charter needs to be discussed. It is true that fewer Australian Catholics are truly active within the life of their church, yet many choose to send their children to a Catholic school (Bishops of NSW and the ACT 2007). The reasons for contemporary parents doing so may be very different from those of their parents who sent them to Catholic schools in the 1960s and 1970s when schools were staffed by Catholic religious. Through social change and mobility, Australian Catholics no longer dominate the lower socio-economic demographic. They are more likely to be found in middle class Australia (NCEC 2004). Coupled with the shifts in social demographics in Australia, this change may force a redefining of the Australian Catholic education identity (Bishops of NSW and the ACT 2007).

In 2007, the NSW Catholic Bishops released a policy statement, Catholic schools at a crossroads, where they stated:

“Catholic schools have contributed to the whole community through educating a significant proportion of its young people, through the offering of distinctive vision and values, and through complementing the government school system and enabling choice and diversity in education ... In the early twenty-first century we find that demographics and economic change have meant that the poor are no longer over-represented in our (Catholic) school, although recent migrants and refugees often are.”

(Bishops of NSW and the ACT 2007, p.6)

“Critical indicators of progress ... might include: - progress towards an increase in the proportion of students in our schools who are from poorer families.”

(Bishops of NSW and the ACT 2007, p.18)

**NSW Catholic schools in the contemporary context**

Provision of education is central to a functioning democracy. Given that the Catholic schools system provides education to about 20 per cent of Australian youth, its importance in Australian society by size of influence alone is substantial. The underlying culture in the Catholic schools system is based on the Christian philosophy of the worth of all individuals and respect for all. Democratic societies believe in open access to education for all (Banks 2005; Brosio 2004; Coleman 1990; Coleman et al. 1966; Greene 1988; Holt 1972; Ladson-Billings & Tate 1994;
Morrison 2008; Putnam 1993; Reitzug 2003) and education for the benefit of the individual and
the functioning of civil society (Dewey 1900, 1916; Fullan 2001; Teese & Polesel 2003). If you
accept that school education aims to develop the young to take advantage of their potential as
individuals and for the broader benefit of society, then the process to support the development
of skills and knowledge on how to ‘take their place within the civil society’ becomes central. To
be effective, civil societies rely on their members having a basic understanding of the operation
of the society, its social expectations and structures.

The structure of the Catholic school system is clearly a product of its history, the needs of
Australian society and the Catholic population over time. The consequence of change in the
Catholic Church and society has resulted in a diverse group of schools offering choice to
prospective students and their families. The schools founded in the late 1800s and early 1900s
were almost exclusively established by the Religious Orders (e.g. Jesuits, Marists, Josephites).
Where these schools were secondary schools, they were generally single sex schools and
‘independent’ in contrast to the more recently established systemic schools and almost all
primary schools which have been established under the authority of the Bishop of the diocese or
the parish in which they are located.

Systemic schools established in the last five decades are almost exclusively co-educational
schools. As the name implies, systemic schools are grouped within one of eleven smaller
systems of schools within each of the eleven Catholic dioceses in NSW. The Bishop of the
diocese is the ultimate authority nevertheless each diocese has a Diocesan Education Office
with an appropriately appointed Board to which the Diocesan Education Director is responsible
for the implementation of policy endorsed by the Diocesan Education Board and the Bishop.
The principals in these schools are responsible to the Diocesan Education Director yet have
considerable autonomy to employ staff, implement school structure and to ultimately determine
the educational philosophy and direction of the school.

Of students presenting for the HSC in NSW Catholic schools in 2008, independent Catholic
schools comprised 30.3 per cent of the total enrolment with the balance (69.7%) attending
systemic Catholic schools (see Figure 4.1). Single sex Catholic boys’ schools comprised 20.2
per cent compared with 21.4 per cent for Catholic girls’ schools, while the bulk (58.4%) of 2008
Catholic school HSC students attended co-educational Catholic schools. However, This Figure
also shows that although systemic schools and their student body are the majority, the
proportions of their students who are TES eligible are not. For example, although nearly seven
in ten Catholic school students are in systemic schools, they represent only one half of Catholic
school students achieving a TES. This indicates that systemic schools are enrolling different kinds of students from the congregational schools.

Figure 4.1: NSW 2008 HSC student cohort in Catholic schools at a glance

(Data source: Board of Studies NSW student records 2009)

Note: TES is the Tertiary Entrance Score derived from the aggregation of the moderated scores from 10 HSC units (usually five subjects).

On average, NSW Catholic secondary schools are larger than the average for all secondary schools in NSW. As Catholic schools are partially self-funding, they must maintain enrolment numbers above a critical minimum to be economically sustainable without charging prohibitive fees of the families of the students that attend. In order to be able to attract a viable enrolment, Catholic secondary schools are generally confined to metropolitan sites and larger rural centres. If smaller country towns in NSW have a secondary school, it is most often a government school,
fully funded and run by the NSW Department of Education and Training. The relative location and geographic relationship of the Catholic dioceses in NSW are shown in Figure 4.2 below.

**Figure 4.2: Map of NSW showing location of dioceses and relative geographic size**

![Map of NSW showing location of dioceses and relative geographic size](image_url)

*Source:* Catholic Education Commission NSW

The independent Catholic schools are also referred to as ‘congregational schools’ as they have been established by religious congregations. These schools are run under the philosophy or ‘values’ of the congregation that founded them, (e.g. ‘Ignatian spirit’ in Jesuit schools, ‘Marian spirit’ in Marist schools, etc.). Although many of these schools no longer have many, if any, religious (priests, brothers or nuns) on the staff of the school, the philosophy (‘style’) of the religious order that founded them, most often still sets the ‘tone’ in the school and within its policies. The independent Catholic schools are usually run by a selected yet representative school board through the daily authority of the school principal. The majority of NSW Catholic boarding schools are independent Catholic schools and most, yet not all, are metropolitan by location. Table 4.1 provides information for the eleven diocesan systems of schools and independent Catholic schools as a twelfth group.
Table 4.1: Composition of the Catholic diocesan systems and the independent school group

<table>
<thead>
<tr>
<th>Diocese</th>
<th>Primary Schools</th>
<th>Secondary Schools</th>
<th>Combined Prim/Sec</th>
<th>Special Schools</th>
<th>Total Schools</th>
<th>Primary Students</th>
<th>Secondary Students</th>
<th>Total Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Armidale</td>
<td>20</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>25</td>
<td>3,834</td>
<td>1,895</td>
<td>5,729</td>
</tr>
<tr>
<td>Bathurst</td>
<td>24</td>
<td>4</td>
<td>6</td>
<td>0</td>
<td>34</td>
<td>5,687</td>
<td>3,235</td>
<td>8,922</td>
</tr>
<tr>
<td>Broken Bay</td>
<td>36</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>43</td>
<td>10,783</td>
<td>5,402</td>
<td>16,185</td>
</tr>
<tr>
<td>Canberra / Goulburn</td>
<td>18</td>
<td>4</td>
<td>6</td>
<td>0</td>
<td>28</td>
<td>4,403</td>
<td>2,946</td>
<td>7,349</td>
</tr>
<tr>
<td>Lismore</td>
<td>34</td>
<td>12</td>
<td>0</td>
<td>0</td>
<td>46</td>
<td>9,030</td>
<td>7,313</td>
<td>16,343</td>
</tr>
<tr>
<td>Newcastle</td>
<td>44</td>
<td>8</td>
<td>1</td>
<td>0</td>
<td>53</td>
<td>9,478</td>
<td>7,827</td>
<td>17,305</td>
</tr>
<tr>
<td>Parramatta</td>
<td>54</td>
<td>22</td>
<td>0</td>
<td>0</td>
<td>76</td>
<td>22,523</td>
<td>18,539</td>
<td>41,062</td>
</tr>
<tr>
<td>Sydney</td>
<td>111</td>
<td>35</td>
<td>1</td>
<td>0</td>
<td>147</td>
<td>36,334</td>
<td>26,266</td>
<td>62,600</td>
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<tr>
<td>Wagga Wagga</td>
<td>27</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>32</td>
<td>5,061</td>
<td>3,408</td>
<td>8,469</td>
</tr>
<tr>
<td>Wilcannia / Forbes</td>
<td>18</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>18</td>
<td>1,977</td>
<td>0</td>
<td>1,977</td>
</tr>
<tr>
<td>Wollongong</td>
<td>29</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>36</td>
<td>10,005</td>
<td>6,117</td>
<td>16,122</td>
</tr>
<tr>
<td><strong>Group</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Congregational*</td>
<td>1</td>
<td>24</td>
<td>13</td>
<td>7</td>
<td>45</td>
<td>4,688</td>
<td>31,451</td>
<td>36,139</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Special School Students</td>
<td>114,399</td>
<td>238,680</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>416</td>
<td>130</td>
<td>30</td>
<td>7</td>
<td>583</td>
<td>123,803</td>
<td>114,399</td>
<td>238,680</td>
</tr>
</tbody>
</table>

Note: * Congregational (independent) Catholic schools are located across many, yet not all dioceses.

(Data source: Statistics 2008: Schools, Students and Staff in NSW Catholic Schools. CEC NSW)

NSW Catholic schools operate under a decentralised model where most policy and administration is local, either within the school or the diocese. All Catholic schools, systemic and independent are represented by a state Catholic schools agency named the Catholic Education Commission (CEC). Although the CEC is a state agency, it does not administer NSW Catholic schools nevertheless it represents the interests of all schools on matters where a single voice is necessary. The CEC has a charter for representation and liaison with other agencies and government and acts on behalf of NSW Catholic schools by way of established protocols and by invitation. To establish policy the CEC would first develop policy before offering it to Diocesan Catholic Education Offices and independent Catholic schools for critique and endorsement.
Of the 583 schools in the NSW Catholic sector in 2008, 153 schools\textsuperscript{35} were secondary schools. There were approximately 18,200 teachers employed in NSW Catholic schools (CEC 2009).

The larger the secondary school, the easier it is to provide access to a range of HSC subjects due to both economies of scale and more options for staffing and adjustment to schools structures. On average, rural Catholic schools had a HSC cohort of 111.9 students compared with metropolitan schools with an average of 149.1 students. As rural Catholic schools are mostly found in areas where low SES households are more likely, the alignment of disadvantage and limited access may further perpetuate disadvantage.

As are the Bishops of NSW and the ACT (Bishops of NSW and the ACT 2007), this thesis is interested in the social make-up of NSW Catholic schools and in particular Catholic senior schools. The research is conducted mostly prior to the raising of the NSW school leaving age and as such the students represented in the detailed data files are considered to be at school by choice. The statement of the Bishops above indicates there has been a diminishing proportion of the poorest children in NSW Catholic schools over time. My data suggest that this is also the case in Catholic senior schools. To investigate this issue and the social consequences, a study of the student body is necessary to explore retention, early leaving, the social make-up of early leavers and retained students and variables linked to pathways and consequences.

\textbf{Early leaving and retention in NSW Catholic Schools}

As discussed earlier one of the major focuses of this research is a single senior student cohort in NSW Catholic schools over a three year period. However, some students do not complete school. This section focuses on this group using NSW BOS, ABS Census Collection District and data obtained by the ACER survey of students. In the first year of the study (2006), the students were in their tenth year of schooling and presenting for the award of the School Certificate in any of 153 NSW Catholic schools. In 2007 these students were enrolled in their Preliminary Certificate year and in the third year of the study the students were in their final and twelfth year of schooling, excluding kindergarten as a year of schooling.

\textbf{Figure 4.3: Schematic representation of the cases involved in the research over time}

\textsuperscript{35} In 2006 there were 153 schools with students in Year 10. Twenty-three of these schools were what are termed ‘Central School’ where Year 10 is the final year delivered. There were a further 130 schools where students could proceed to complete Year 12 in the same school.
The thesis examines information on 21,827 students who enrolled for the study of the School Certificate of 2006 and a further 1394 students who join this group in either the Preliminary or HSC year. Of this total number (N = 23,221), 15,828 completed their Higher School Certificate in a NSW Catholic school. Of those that did their School Certificate (Year 10) in a NSW Catholic school, 7,349 students did not complete the HSC in a Catholic school along with 44 that joined the cohort between the start of the Preliminary year (Year 11) and the award of the HSC. This non-completing (early leavers) group includes; students that left school, those that moved to a NSW non-Catholic school and those that moved from NSW to continue education in another state or overseas. This information is provided schematically in Figure 4.3 above.

Of those students awarded a School Certificate in Catholic schools in 2006, 66.3 per cent remained in the Catholic school system to be awarded the HSC in 2008. Individual student retention for the cohort through to the award of a NSW HSC is therefore 66.3 per cent with apparent retention at 75.4 per cent.

Early school-leavers are less likely to be able to engage in worthwhile long-term employment (part-time or full-time) and are far less likely to be able to re-engage with learning through post-
school access to further education or training with the significant exception of those students that leave school to participate in a full-time apprenticeship (Lamb & McKenzie 2001; Helme et al. 2005; Polesel & Teese 2006a; Karmel 2008b; Polesel 2010). Although retention for girls in Australia (81.2%)\(^{36}\) was higher than for boys (71.1%), early-leaving females were more than twice as likely to be unable to engage in full-time work\(^ {37}\) (Lamb & McKenzie 2001). There is a social pattern to early leaving where students from low SES households are significantly more likely to leave early. The pattern may be self-perpetuating despite the economic and social penalty that is the usual consequence (Teese & Polesel 2003; Lamb 1996).

**Figure 4.4: Students by gender as a proportion of all students leaving NSW Catholic schools in 2006 on completion of the School Certificate (Year 10) by quartile of SEIFA Index of Relative Socio-economic Advantage and Disadvantage**

![Figure 4.4: Students by gender as a proportion of all students leaving NSW Catholic schools in 2006 on completion of the School Certificate (Year 10) by quartile of SEIFA Index of Relative Socio-economic Advantage and Disadvantage](image)

Given that students leaving school before the award of the senior school credential are disadvantaged in comparison to those that complete, the information conveyed in Figure 4.4 is an equity challenge for NSW Catholic schools, in that those most disadvantaged predominate amongst those that leave school with the minimum of education, further perpetuating

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\(^{36}\) Percentages are the average of data 2000 to 2008 as provided by ABS, refer to Table 4.2.

\(^{37}\) Seven years after what would have been Year 12, a massive 60% of females who left school before completing year 10 are not in the work force; whilst seven years after Year 12, only 7% of females who complete Year 12 have left the labour force (Lamb & McKenzie 2001).
disadvantage. The early leavers represented in this Figure from NSW Catholic schools include students moving to a non-Catholic school or another state to complete their schooling. Given this, Figure 4.4 shows a skew towards those from the lowest SES quartile, with 59.5 per cent of leavers from the bottom two SES quartiles.

Upon examination of the Year 11 early leavers as a distinct group (1,410 students), social patterns were clearly evident (Figure 4.5 below); as was the bias towards early leaving male students (62.3%). The same bias was evident with the early leaving Year 10 students.

**Figure 4.5: NSW Catholic school students who left school in Year 11 before the completion of the Preliminary Certificate by gender and quartiles of SEIFA Index of Socio-economic Advantage and Disadvantage in 2007**

![Graph showing percentage of students leaving by quartile and gender](image)

(Data sources: Board of Studies NSW student records 2009 and ABS CCD data)

Students leaving during the Preliminary year (Year 11) without improving on their School Certificate credential (Year 10) show a similar social pattern to those that leave directly after the compulsory years of schooling. Figure 4.5 above shows this pattern and as was the case for Year 10 leavers, it has a predominance of boys. Of boys initially enrolled in Year 11 in a NSW Catholic school in 2007, 591 (6.7%) left school without further school credentials whilst the

38 This group enrolled in Year 11 (NSW Preliminary Certificate) but failed to complete enough content to be awarded the Preliminary Certificate.
number of girls was much lower at 358 (3.9%). The Telephone survey data relating to NSW Catholic school students surveyed in the ACER study conducted in 2010, suggest that this is because boys have more opportunity to leave school for positive reasons (work, apprenticeship and training) than do girls. My analysis shows that, of the early leaving girls in the survey, 77.8 per cent left school for what might be termed negative reasons (reasons other than: work, apprenticeship, study and training) whilst only 44.4 per cent of boys could be considered to be in this grouping (Figure 4.6 below).

**Figure 4.6: Reasons given for early leaving from NSW Catholic schools by gender**

(Data source: ACER survey 2010)
Figure 4.7: Reasons given for staying on by those students who considered leaving after the Preliminary year in NSW Catholic schools by gender

(Data source: ACER survey 2010)

Data from the ACER survey (2010) suggest that students from Catholic schools most frequently reported that they needed to complete Year 12 for their career as the strongest reason for staying on at school (see Figure 4.7 above). Girls in particular cited this reason, with 61.8 per cent of girls compared with 45.5 per cent of boys indicating career needs as the major reason for staying on at school.

Seemingly without regard for the quality (level of achievement) of the school credential obtained, participation beyond the compulsory years of schooling seems to better prepare young people to access their appropriate place in Australian society, particularly in relation to earnings (Chiswick et al. 2003). Dockery (2005) acknowledges the research of Chiswick et al. (2003) that shows inferior outcomes for early school leavers yet challenges the possible assumption that staying at school would improve the outcomes. Although estimates produced by modelling indicate that earnings (as one measure) may increase by as much as 6.5 per cent if early leavers were to stay in Australian schools to receive the Senior School credential, it is unclear if detrimental effects may be a consequence if seemingly disengaged students are ‘forced’ to stay
at school in an environment they may find repugnant. A number of studies would suggest that such youth may be better served by years in full employment than by school attendance beyond the compulsory years (Dockery 2005).

As has been the case since the Finn Report (Finn 1991), state and national levels of government in Australia have school retention as both a goal and as a performance measure for the school education system (COAG 2007, 2008a; State Government NSW 2007; DET 2008b; Iemma 2006). This thesis accepts this view and strongly supports the concept with the provision that retention is synonymous with engagement. It is important to make the case before a discussion of retention that retention as a measure alone is limited despite the established benefits to students (Teese et al. 2000). It may be argued that there are a number of students that attend school because they do not have a realistic alternative and therefore may not be choosing the school offering as their favoured option; this possibility will be explored further below.

From the employers’ perspectives, school graduates are valued for skills beyond those recorded on an Australian Qualification Framework (AQF) credential. Employers clearly want prospective employees to be equipped beyond the industry specific skills. Employers want what are referred to as employability skills or foundation skills. Interestingly, employers across the developed world consistently rate written communication, work ethic (professionalism) and critical thinking (problem solving) as essential for the transition to employment (TCB 2006; ACCI 2002, 2007; NSPC 2008).

Low literacy and numeracy ability may be a greater influence on early leaving than the curriculum offerings in the senior years. Dockery (2005) and Sweet (2008) support the view that the lack of ability in literacy and numeracy is the major cause of disengagement and therefore early leaving. Using School Certificate results, data analysis of early leavers from NSW Catholic schools show a correlation between ability in these disciplines and early leaving.

The strong connection between low literacy levels in the earlier years of school and low retention must also be noted and addressed by Catholic schools with a desire to improve retention (see Figure 4.8 below). This may reflect the phenomenon identified by Marks et al. (2000) who suggest that students struggling with low literacy in Years 8 and 9 are significantly more likely to say they “intend to leave school early”; having verbalised their intent early, they are seven times more likely to leave earlier than those that have not (Marks et al. 2000).

39 This term is referring to ‘part-time work without accessing further training’ not full-time work which is largely inaccessible for these ‘uneducated’ early leavers.
40 Finn recommended that by 2001, 95% of 19 year olds should have completed Year 12 or an initial post school qualification or be participating in formally recognised education or training.
Students leaving the NSW Catholic school system without a senior school credential are predominantly below average in School Certificate English-Literacy grades with 40.1 per cent located in the lower two bands. The School Certificate English test is developed to test for English literacy and as such, results can be used as a literacy measure. Given the direct correlation between these grades and literacy proficiency, it is clear that low literacy is a factor that contributes to the decision to exit school as early as possible. A number of schools have introduced literacy skill development into VET programs in an endeavour to address the needs of their students. In this context, student engagement with literacy was reported to be enhanced due to student perception of the relevance of the learning (Priest 2008).

With pressure from government for improved retention rates (COAG 2007, 2008; Iemma 2006; DET 2008b), the Catholic sector could have as its first endeavour, improvement in literacy in particular as the means not only to improve retention but to support appropriate transitions whenever they occur (Lamb 1997). This approach may help to reduce negative early leaving (Teese et al. 2000).
Although School Certificate (SC) Mathematics is not developed specially to be a measure of general numeracy unlike the connection between SC English Literacy and literacy proficiency, parallels can be drawn. Given that School Certificate Mathematics is a compulsory subject along with English Literacy, the number of students in the sample is the same as for English. However, the distribution pattern for those that leave NSW Catholic schools is less distinctive than it was for students’ results in School Certificate English Literacy (see Figure 4.9).

**Figure 4.9: Catholic school student grade results for School Certificate Mathematics in 2006 by 2007 transition outcome** (A is highest academic grade)

![Graph showing distribution of grades for School Certificate Mathematics by transition outcome]

(Data source: Board of Studies NSW student records 2009)

Although a greater proportion of the students leaving school (49.4%) are found in the lower two grades of School Certificate Mathematics than for English, they are a lower proportion of all students found in these grades. Using the percentage of students located within a grade as the indicator, the outcome of School Certificate Mathematics seems to be a weaker indicator of possible senior school transition than English, as shown in Figure 4.10.
On average, students from the highest quartile of SES backgrounds leaving school early produce School Certificate results well below that of other students. It would seem that high SES encourages, in some way, lower performing students to proceed beyond the compulsory years of schooling; possibly ‘privilege producing privilege’ through heightened support and aspiration.

When apparent retention information is analysed using ABS data over time and against all students in NSW and Australia, the NSW Catholic sector compares favourably. (Refer to Table 4.2 below).
Table 4.2: Apparent retention rates Years 10 to 12 by gender for NSW Catholic schools, all NSW schools and all Australian schools

<table>
<thead>
<tr>
<th>YEAR</th>
<th>NSW Catholic schools</th>
<th>All NSW schools</th>
<th>All Australian schools</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male %</td>
<td>Female %</td>
<td>Persons %</td>
</tr>
<tr>
<td>2000</td>
<td>73.9</td>
<td>82.2</td>
<td>78.0</td>
</tr>
<tr>
<td>2001</td>
<td>73.5</td>
<td>82.6</td>
<td>78.0</td>
</tr>
<tr>
<td>2002</td>
<td>74.7</td>
<td>83.6</td>
<td>79.1</td>
</tr>
<tr>
<td>2003</td>
<td>74.6</td>
<td>82.3</td>
<td>78.4</td>
</tr>
<tr>
<td>2004</td>
<td>74.1</td>
<td>83.3</td>
<td>78.6</td>
</tr>
<tr>
<td>2005</td>
<td>74.5</td>
<td>83.3</td>
<td>79.0</td>
</tr>
<tr>
<td>2006</td>
<td>73.2</td>
<td>82.8</td>
<td>77.9</td>
</tr>
<tr>
<td>2007</td>
<td>73.0</td>
<td>82.3</td>
<td>77.6</td>
</tr>
<tr>
<td>2008</td>
<td>72.2</td>
<td>81.7</td>
<td>76.9*</td>
</tr>
<tr>
<td>Average</td>
<td>73.7</td>
<td>82.7</td>
<td>78.2</td>
</tr>
</tbody>
</table>

(Data source: ABS Schools Australia 2008b)

Note: * The data in this Table vary from the percentage obtained from the research data (Figure 4.3) due to the following: research data has removed some students for accuracy (refer to Chapter 3); the ABS data is collected in August whilst the research data is ‘completion data’ (December).

Retention rates for Years 10 to 12 in NSW Catholic schools have fluctuated slightly over the past decade nevertheless the overall trend could be described as maintained retention as opposed to improved retention. Retention does to some extent reflect economic conditions (Sweet 2008) and this may be one explanation of the pattern in the Table above. This might be confirmed by the similar patterns of all NSW schools and that of NSW Catholic schools, although the state and national retention rates show slight improvement over the period 2000 to 2008. The whole of NSW apparent retention percentage rate has improved since the turn of the century, unlike Catholic schools which started on a higher base. The apparent retention rate (72.2%) for the 2008 HSC cohort of boys in NSW Catholic schools does not compare well against girls (81.7%). This disparity is consistent over time and for NSW and nationally since 1991. For the cohort contained in the data analysis, the gender share in the 2006 School Certificate Year across Catholic schools was very close to 50/50. However in the 2008 HSC, girls outnumbered boys and to an even stronger degree in Catholic schools in rural locations. Retention by location will be discussed in more detail later in this section of the thesis.
Although apparent retention in NSW Catholic schools is relatively good by national standards (Laughlin 2008), the reported raw percentages may be misleading. There is disparity between boys and girls in NSW Catholic schools. As indicated above, economic downturn generally results in improved retention in schools, as is evident between 2008 and 2011 for NSW Catholic schools (refer to Figure 4.11 below).

**Figure 4.11: Apparent retention from Year 9 to Year 12, NSW Catholic schools 1991-2011**

Deliberations by governments too often do not have regard for analysis beyond the apparent retention rates. A study (at the school level) of cohort demographics, ability and background is necessary to establish a more detailed picture of retention, and further analysis of actual retention is essential before judgement as to the success or otherwise of student retention strategies in NSW Catholic schools.

Retention is an important measure and should inform policy at the school and sector levels. Apparent retention as a policy tool is useful, still individual student tracked retention data is needed to take full advantage of retention as a measure (Teese & Watson 2001).
Noting the greater than 10 per cent increase in apparent retention over the past 20 years; the most recent decade has shown a stabilisation of retention and a demographic shift in cohort configuration. Prior to this, there was a marked increase in retention between 1981 and 1993 (ABS data over time). This increase occurred during a period of both policy and economic change in Australia and a quickly declining youth labour market (Wooden 1996). By the mid-1990s fewer than twenty per cent of 15 to 19 year olds were in full-time employment compared to thirty years earlier when greater than sixty per cent were full time workers in Australia (Lewis & Koshy 1999). Teese (2002) argues that the lack of jobs contributed to the increased retention (Teese 2002). Unlike previous generations, students who wished to complete school at Year 10 were faced with the choice of unemployment or staying on at school in an attempt to increase their employment prospects by the achievement of a Senior School Certificate.

NSW Catholic secondary schools have made small but steady movement towards becoming providers for students from more affluent families (Bishops of NSW and the ACT 2007). There has been a small drift of students from higher SES households towards both Catholic schools and towards non-Catholic independent schools (Preston 2007). Students from low SES households are more likely to attend the local government secondary school than was the case in 1996 (and most likely, even more so, than was the case in the 1960s) (Pascoe 2007).

As reported by Lamb in 1995, 31.2 per cent of Year 9 students in government schools in Australia were from the lowest SES quartile compared with 17.5 per cent of students in Catholic schools (Lamb, 1996). If this demographic has been maintained, a higher than average student retention percentage for NSW Catholic schools would be an expectation due to the strong correlation between academic outcome and SES in Australian educational performance (OECD 2004; Lamb et al. 2004b). Although the NSW Catholic sector is far from being an exclusive middle-class provider, analysis must note the trend and account for it, particularly if using apparent retention measures.

Given that different school sectors attract different percentages of students from different SES backgrounds, a number of studies have tried to account for this when analysing if the sector or type of school can be credited with producing ‘better retention’. Lamb (2004) refers to these studies and draws the conclusion that there do seem to be effects beyond SES that significantly influence the retention of students. The structure of the school (pastoral care, discipline and order), the quality of the teaching and the offering of a broad range of extra-curricular activities seem to also enhance retention (Teese 1989 cited in Lamb 2004a). Catholic schools in NSW

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41 This pattern reflects that of Australia as a whole (Karmel 2008a).
42 As more than 30 per cent of Catholic schools students in Australia attend a Catholic school in NSW, these findings could also be considered to be reflective of NSW.
would certainly judge themselves as displaying such retention-supporting structures yet apparent retention trends in NSW Catholic schools have shown stabilisation after strong growth in the 1980s and 1990s. The goal of government to have 90% retention by 2015 (Iemma 2006) or even 2020 (COAG 2007, 2008) seems beyond NSW Catholic education (and most other systems and jurisdictions), based on current trend data.

Figure 4.12: Retention from Years 10 to 12 for the 2006 Year 10 cohort in NSW Catholic schools by gender and location

There are marked variations in actual student retention (individual) between metropolitan and rural Catholic schools in NSW, as shown in Figure 4.12 above. There is also a large variation in individual retention between genders in rural and metropolitan Catholic schools. This retention variation may signal equity challenges for the sector based on the location of the provision. The higher percentage of school leavers in some rural dioceses may to some degree be attributed to the existence of “Year 10 schools” in these dioceses, where these schools do not offer pathways to Years 11 and 12 within the same school. In this circumstance, many students complete their schooling at the local government high school and appear in Catholic school apparent retention records as ‘school leavers’. There are 23 NSW catholic schools where Year

43 Note that some NSW dioceses contain both metropolitan and rural schools.
10 is the final year of schooling offered at the school. The students in Year 10 across these schools number 2,108.

Retention for girls in NSW Catholic schools is stronger than it is for boys. Teese (2000) and Lamb (1998) indicate that boys are more able to move to available jobs, particularly apprenticeships, guaranteeing employment by accessing opportunity at the earliest availability; to use the words of Teese, “... boys have more opportunity to escape” (p.51). This is particularly true in rural schools where boys are more likely to move to employment as it becomes available without consideration of the completion of their HSC (Helme et al. 2005: Teese 2002; Marks & Flemming 1999).

There is an increasing enrolment of Aboriginal students attending Catholic schools (CEC 2011), therefore it is even more imperative that schools are aware of the additional challenges faced by Aboriginal students that reflect retention rates below half that of other Australians (Lamb et al. 2004). Although retention of Aboriginal students in Catholic schools is better than the national figure (refer to Figure 4.13), Catholic schools need to be aware that the Aboriginal student retention rate is well below that of other students, and specialist student support may be needed to address it.
The retention trend for Aboriginal students is very different from that of the full student population for NSW Catholic schools. Some of the increase can be attributed to the fact that over recent years some Catholic dioceses have introduced free enrolment for Aboriginal Australians. Apparent retention for Aboriginal students showed an increase to 2008 followed by a sharp decline. Although the exact cause is unknown, two possible explanations (non-researched based) have been offered to the researcher. Firstly, it has been suggested that the income generated by young Aboriginal people is particularly essential in the support of the family and community and therefore when the economy and employment are less buoyant, there may be fewer opportunities and incentives for young Aboriginal Australians to stay at school for a senior school education. Secondly, dependence on subsidies paid by government becomes more essential for family support when general unemployment is high and payments for dependent unemployed youth are greater than for dependent students.

From the analysis of the data, and in particular, the data for the group of students leaving the NSW Catholic school system before receiving a HSC in 2008, it would seem clear that low socio-economic status factors are linked to their decision. Table 4.3 below shows the link
between school retention and the SES of the student’s household for the NSW Catholic school system between the School Certificate 2006 and the Higher School Certificate in 2008.

Table 4.3: Number and percentage of retained students, new students and non-completing students for Years 10 to 12 (2006-2008) by SEIFA Index of Relative Socio-economic Advantage and Disadvantage and gender

<table>
<thead>
<tr>
<th>Student Group</th>
<th>Gender</th>
<th>Lowest SEIFA* quartile % (N)</th>
<th>Lower-mid SEIFA* quartile % (N)</th>
<th>Upper-mid SEIFA* quartile % (N)</th>
<th>Highest SEIFA* quartile % (N)</th>
<th>Total** % (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retained students Years 10 to 12</td>
<td>Boys</td>
<td>10.8% (1588)</td>
<td>11.3% (1656)</td>
<td>12.6% (1856)</td>
<td>13.8% (2031)</td>
<td>48.5% (7133)</td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>11.9% (1752)</td>
<td>12.9% (1898)</td>
<td>13.1% (1921)</td>
<td>13.7% (2010)</td>
<td>51.5% (7581)</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>22.7% (3340)</td>
<td>24.2% (3554)</td>
<td>25.7% (3779)</td>
<td>27.5% (4041)</td>
<td>100% (14714)</td>
</tr>
<tr>
<td>New students Years 11 and 12</td>
<td>Boys</td>
<td>13.8% (186)</td>
<td>10.6% (143)</td>
<td>10.8% (146)</td>
<td>10.8% (181)</td>
<td>48.7% (656)</td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>11.8% (159)</td>
<td>12.6% (170)</td>
<td>12.2% (165)</td>
<td>13.0% (175)</td>
<td>49.6% (669)</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>25.6% (345)</td>
<td>23.6% (318)</td>
<td>23.7% (319)</td>
<td>27.2% (366)</td>
<td>100% (1348)</td>
</tr>
<tr>
<td>Non-retained students Years 10 to 12 #</td>
<td>Boys</td>
<td>17.6% (879)</td>
<td>16.1% (805)</td>
<td>13.7% (683)</td>
<td>9.3% (465)</td>
<td>56.7% (2832)</td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>13.9% (693)</td>
<td>11.6% (579)</td>
<td>9.6% (480)</td>
<td>7.8% (388)</td>
<td>42.8% (2140)</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>31.5% (1572)</td>
<td>27.8% (1389)</td>
<td>23.4% (1171)</td>
<td>17.3% (863)</td>
<td>100% (4995)</td>
</tr>
</tbody>
</table>

(Data sources: Board of Studies NSW student records 2009 and ABS CCD data)

NOTE: This Table has been produced by putting all students into SEIFA quartiles for the whole cohort to allow comparison. i.e. comparison is possible across quartiles and between groups.

* SEIFA refers to the SEIFA Index of Relative Socio-economic Advantage and Disadvantage

# This group includes all students leaving NSW Catholic schools after receiving a School Certificate and prior to the completion of 2008 HSC. It includes those leaving school, those moving inter-state and those moving enrolment to a non-Catholic NSW school.

** Numbers and percentages may not total as some students were unable to be placed in the SEIFA quartiles due to lack of accurate residential address information. Students in this category by groupings shown in the Table:
- Retained students – 348 (2.3%)
- New students – 46 (1.7%)
- Non-retained students – 23(0.5%)
The SES background of the students that remain in NSW Catholic schools varies from those that leave after the compulsory years of schooling⁴⁴. Students from the lowest two quartiles of SEIFA Index of Relative Socio-economic Advantage and Disadvantage comprise 59.3% of those that leave the NSW Catholic School system after completing the School Certificate and before completing the HSC. Students from the quartile of the most advantaged background comprise only 17.3% of those that leave after Year 10; being outnumbered by those from the lowest SEIFA quartile by almost two to one. Of those that leave, boys are the majority at 56.7 per cent for reasons as discussed above. Students joining the cohort between Year 10 and the completion of the HSC display different social characteristics by gender. Girls tend to have a bias towards higher socio-economic status backgrounds and boys towards low socio-economic status backgrounds.

One of the strategies for improving retention has been the use of Vocational Education and Training (VET) to encourage students to stay at school. As this curriculum area forms an important part of the analysis presented in this thesis, it is important to place it in an historical context and to explain its role in the NSW curriculum.

**History of Vocational Education and Training in NSW schools**

Vocational education and training in Catholic schools is not new in concept nor is the direct connection between school-delivered skills and the world of work. There have always been local examples of strong relationships between particular schools (or individual teachers) and local industry and employers. In the earliest days of education in Australia, these relationships were evident in the support provided to the school usually by way of resource provision and also by the direct employment of ex-students on the recommendation of ‘trusted’ school personnel. These relationships have well served schools, including Catholic schools, Catholic school students and smaller scale ‘local’ industry and business for well over a century. Although this model seems similar to what is proposed for VETiS in the 21st century (Rudd & Smith 2007b), and a decade earlier by McGaw (1997), it was significantly different in that it was provision for younger students in a pre-apprenticeship, pre-employment program during the compulsory years of schooling where students were often streamed (no choice) into the vocational pathway.

⁴⁴ Legislation to increase the school leaving age to seventeen was introduced in 2010 and did not apply to this group of students. The legislation at the time required students to stay at school until the completion of the Schools Certificate; typically age sixteen.
The ‘qualifications’ achieved were school or school system based and had no real transmission to, or recognition in, the workplace or with further training providers. In many industry contexts, there existed a rift between post school providers and ‘trade teachers’ in schools as to the most appropriate content for school delivery. A number of post-school providers were insistent that any form of ‘trade training’ should be exclusively delivered within their domain as evidenced by the strong support of post-school VET providers for the abolition of the technical high schools from all school sectors in NSW in the 1960s (Currie & McCollow 2002).

During the second half of the 20th century, in response to the Wyndham Report, technical high schools were closed or restructured and almost all Catholic secondary schools in NSW were re-established along the line of the universal comprehensive model, putting an end to ‘compulsory’ streaming of students based on academic achievement in the early years of secondary education (Wyndham 1957). From an equity perspective, a number of Catholic education providers were uncomfortable with a non-comprehensive model of delivery where there was the potential for students to be streamed. So with the perception of academic and social exclusion at this time, the move to fully comprehensive schooling was an easily established position. With the demise of the technical high schools and the ‘softening’ of trade training in schools there developed a gap in the curriculum, particularly in the 1970s and 1980s as more students continued beyond the compulsory years of schooling. The major reason for this was the emergence of the global economy and a realignment of Australia within the global trade arena (Finn 1991; Carmichael 1992; Morrow 1993) and as a response to the growing pressures of increased retention rates (Keating 1994). Retention in Australia to the completion of the senior secondary credential (the HSC in NSW) doubled in the period 1980 to 1994 (35% to 78%) and schools provided many more students with the option of direct progression to higher education which also almost doubled in the same period from 20 per cent in 1980 to 38 per cent in 1994 (Long et al. 1999). The social view of the pathway to TAFE being one of quality may have taken a ‘beating’ over this period with the numbers transitioning to TAFE declining to a low of 13 per cent in 1990 (Laver 1992).

The NSW senior secondary curriculum at this time was limited and schools were restricted in their provision for students seeking access to applied learning. Many schools eager to deal with this shortfall developed ‘local’ curriculum to accommodate the needs of their students. Of these schools, most registered their ‘own’ curriculum with the NSW Board of Studies (BOS) by way of the Board Endorsed Course (BEC) process to enable the inclusion of applied learning as part of the Higher School Certificate (HSC). There was a huge growth in the number and breadth of
BECs\textsuperscript{45} during this period (1980-1994) (McGaw 1996). The BECs approved by the BOS in the area of applied learning often included the delivery and recognition of specific industry (job-related) skills. Packaging and recognition of these skills was at the school level. School-issued ‘skills certificates’ were sometimes valued by local employers particularly due to there being no alternative for communicating the achievement of skills other than direct communication with the school. As was the case in the previous era of the technical high schools, a means of supporting students with interest in applied learning was developed, implemented and refined to the advantage of both students and some industries. As with the technical high schools, the school-issued ‘skills certificates’ generally carried most credence with local (to the school) employers who had a level of trust in the ability of the school to appropriately deliver, assess and credential the skills of their students. This trust was in some instances developed during the technical high school era (pre-Wyndham).

During the early post-Wyndham period, changes in workforce relations resulted in a shift in employment contracts and training arrangements. Many large companies started the move towards casualization of their workforce and the outsourcing of ancillary work and training. There was a move towards more flexible and transient employment contracts (Green et al. 2009). Due to the reliance on the relationship between schools and prospective employers to give value to school-based credentials, their value became more limited as employers moved towards a more flexible industrial relations model and the workforce itself became more transient. Schools tried to accommodate student movement by providing detailed descriptions of the achieved skills as part of the certification process. Prior to this time, many of the school-delivered work-based skills had not been described and both schools and employers struggled to achieve a collective understanding of what skills students were actually taking from school to the workplace. Interestingly, the range of BECs (school developed subjects) and ‘skills sets’ they contained progressed well beyond the traditional trades and into areas where few if any, recognised qualifications existed at the time (e.g. Primary Industries, Furnishings and Information Technology). They were, in a number of instances, the precursor to the Australian Qualifications Framework (AQF) and Industry Training Packages.

When an individual school application for a BEC recognition was successful, the subject became openly available to other NSW schools. Additional schools could ‘link’ to this subject provision with the permission of the initial (original) subject developer’s school. This sharing of development and provision became widespread and the number of BECs proliferated through all school sectors in NSW in the 1980s (McGaw 1996). The quality of such subjects varied,

\textsuperscript{45} Referred to as \textit{Other Approved Courses} at this time.
nevertheless the professionalism of schools and teachers coupled with the regulation of the HSC usually ensured that a measure of both quality and appropriateness were maintained.

“A problem with the development of vocationally relevant curriculum is that they (Board of Studies subjects) may narrow as easily as they may expand options for students. There is a strong case for valuing the benefits of local initiative.”

(Ryan 1997, p.7)

The initial registration of the subject through the BEC process did provide sound levels of quality control, yet the subsequent linking of schools to registered subjects developed for a different cohort in a different location and circumstance introduced some quality concerns into the process. Unlike government schools, independent and Catholic schools in NSW require registration with the NSW Board of Studies. It could be debated that this rigorous inspection process by an external agency helped to ensure the appropriate use of BEC subjects in Catholic schools during this period where schools were ‘forced’ (due to lack of alternatives) to take ownership of applied learning curriculum development.

Catholic schools have provided VET programs as part of the HSC since the early 1980s. Through the 1980s and early 1990s the delivery of such learning was almost exclusively by Technical and Further Education (TAFE) colleges through a program called the NSW Joint Secondary Schools TAFE Program (JSST). The NSW government sponsored places in TAFE so Catholic schools were encouraged to participate and did so, generally to the limit of the provision of ‘funded’ enrolments. By the 1990s, students wishing to access JSST outnumbered the sponsored places. As additional places needed to be fully funded by the school, the introduction of Industry Studies as a school delivered HSC VET subject was welcomed by the NSW Catholic sector in 1993 because it not only allowed school delivery of VET programs, it also reduced the financial burden of students attending TAFE beyond the limit of the available sponsored enrolment.

At about the same time (early 1990s) as Mayer (1992), Finn (1991) and Carmichael (1992) were releasing their historic papers on the directions for education in Australia, the Board of Studies NSW recognised that the major portion of the registered BEC subjects were a reflection of schools’ attempts to provide both generic workplace and industry specific skills to their students; an endeavour by schools to offer a more balanced and equitable curriculum in the senior school. This approach (industry specific learning as part of the HSC) was somewhat legitimised by the BOS with the introduction of the Industry Studies subject in three industry areas, namely: Hospitality, Retail and Metal and Engineering.
The introduction of Industry Skills in Year 11 in 1993 subsumed all the BECs in these three industry areas and resulted in a reduction in the number of registered BECs in 1995 for the first time since their introduction. In fact, the policy in NSW government schools changed in 1994, to prohibit the delivery of subjects other than dual-accredited VET subjects (Industry Studies and TAFE subjects) (Evans 2005); non-government schools soon followed this policy direction. The introduction of Industry Studies was reflective of Carmichael’s recommendations (1992): that schools or education systems become registered providers; that subjects result in dual-accreditation; that subjects include work placement and that school delivered VET allow direct articulation into post school training arrangements. Carmichael also recommended that schools move towards more flexible delivery structures to allow engagement with the workplace as both a learning opportunity and to allow part-time work arrangements to be implemented and/or recognised within school credentials (Carmichael 1992). NSW schools found it difficult to embrace the re-structuring required for the introduction of the Industry Studies subject despite the decision of the Minister to maintain all senior student enrolment and recognition, VET and non-VET, within the one senior school certificate (the NSW HSC).

The ‘breadth of study’ requirements of the NSW HSC (refer to pages 60 &61) seem to lock schools into rigidity whereby the curriculum and school structures prevent student engagement in VET beyond an introductory level (240 hours over 2 years). It will be argued that schools and their communities have a false expectation that preparation for a post-school university transition must take priority over alternative pathways.

The trend to subsume school developed curriculum into centrally developed curriculum continued in NSW in the latter half of the 1990s with the introduction of further Board Developed Courses (BDC) (subjects) in the industry areas of Building and Construction, Primary Industries, Business Services and Information Technology. These subjects were not given the same status as those developed previously (1993 Industry Studies); they were referred to as Board Developed Content Endorsed Courses (CECs) (subjects). Unlike the Industry Studies subjects (Hospitality, Retail and Metal and Engineering), the CECs could not be included in the calculation for university entry. Take up was limited as a consequence, as many students and their parents insisted that the pathway to university remain an option when selecting HSC subjects (Porter 2006; Crump & Stanley 2005). There was also a strong voice (not unanimous) in Catholic schools that VET, CECs in particular, represented the reintroduction of pre-Wyndham streaming (viewed as social and academic selection by a few) and some opposition to their introduction developed. There was also some opposition due to the involvement of industry in the education agenda, subject development in particular, that in the eyes of some was the exclusive domain of ‘educators’.
“Through the late 1990s, as a major review of the Higher School Certificate in NSW proceeded, secondary schooling in NSW was restructured through policy interventions as a result of a timely but difficult collaboration between industry, the unions and government.”

(Crump & Stanley 2005, p.1)

With the introduction of the Australian Qualification Framework and New Apprenticeships in the second half of the 1990s, Vocational Education and Training became even more accessible to students whilst still at school. This structural change promoted an increase in VET providers and amongst them, schools. Industry took carriage of their own curriculum through the development of Industry Training Advisory Boards (ITABs) and prepared what came to be known as Industry Training Packages. Although the Training Packages were unlike school curriculum of the time, they became the basis of the Industry Curriculum Framework subjects (ICFs) developed by the NSW BOS for delivery in NSW schools.

In Their Future (1996), McGaw recognised the proliferation of school developed Board Endorsed Courses (BECs) and the significant variance of quality and quantity of their content and in the manner they were being delivered. Through the policy paper Shaping their Future (1997) he recommended that the Board of Studies continue with the provision of Board Developed Courses where a high number of registered BECs indicated a strong demand. It was thought that this approach would help to standardise quality and enable what were previously BEC or CEC subjects to count towards university entry and help address the potential equity issue of social streaming aligned to curriculum. In principle, this was an excellent idea; an attempt to give VET subjects a status equivalent to that of general education (non-VET) subjects. Although the Board of Studies delivered on McGaw’s (1997) and Aquilina’s (1997) recommendations by designing VET subjects that enabled both VET (industry) recognition and university entry, in so doing, some compromises had to be incorporated into VET programs (McGaw 1996, 1997; Aquilina 1997).

The major compromises involved designing subjects with significant portions of compulsory content to enable examination and student ranking for the benefit of calculating university entry that many students enrolled in VET had no intention of pursuing. Where an Industry Training Package was designed with a group of compulsory core competency units, the mandated units of a HSC VET subject could reflect this content without limiting the possible VET qualification outcomes. However where this association was not the case, a misalignment between student

46 “Vocational Education and Training courses should be potentially appropriate for all students in the Higher School Certificate and should be accessible to all, including those who move from secondary to higher education” Securing Their Future, (Aquilina 1997, p.16).
choice and compulsory units could transpire. This model is described by Lamb and Vickers as the school model which attempts to provide both AQF and senior school credential recognition (Lamb & Vickers 2006). Universities in NSW frustrated the BOS attempts at parity between VET and non-VET subjects by deeming all HSC VET subjects developed as part of the New HSC (2000 implementation) to carry ‘Category B’ status. As only 2 HSC units (120 hours) from subjects deemed Category B (20% of the total necessary) can be used for the calculation for university entry, NSW students wishing to maintain a university pathway as a post-school option were limited to a low-level (introductory) engagement in one VET program (industry area). This approach seemed to strongly signal to the NSW education community that other than a casual engagement in VET is for the less academically able (Crump & Stanley 2005).

Although these VET offerings could be viewed as introductory in nature, they proved popular in Catholic schools. Available to students of all academic levels, the New HSC VET subjects were, not surprisingly, particularly attractive to students not wishing to attend university directly from school. They certainly provided engagement for many students who may have been at risk of not continuing at school beyond the compulsory years (Evans 2005).

VET delivery as part of the New HSC (2000) did not meet with universal acceptance in Catholic schools. Some schools reacted strongly against school delivery of VET programs and would only allow access to such programs if students could manage access to VET delivered by external (to the school) Registered Training Organisations (RTOs) such as TAFE. This approach for some schools was more than a consequence of difficulties with delivery, economic reasons, or timetabling concerns. It was a conscious decision to keep VET outside the school due to it being considered ‘inappropriate’. It was thought that the introduction of VET may somehow lessen the provision of general education and challenge the ‘comprehensive’ (non-streaming) nature of the Catholic school. A few Catholic schools felt that learning in its purity was being threatened by skills development for direct employment. The role of the Catholic school in the eyes of some did not include direct preparation for positions in the workforce (employment). Some schools debated that such delivery was the re-introduction of the streaming47 of the pre-Wyndham era.

**Conclusion**

In 2012, Catholic schools find themselves at a “crossroads” (Bishops of NSW and the ACT 2007), where although foundations of two centuries cannot be rebuilt, new structures and

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47 Streaming has very negative implications in educational discussion in NSW and particularly in the NSW Catholic sector as it can be seen to be philosophically opposed to the principles of Catholic education.
principles may need to be considered to cater to the changing landscape. This is due to a number of considerations: the Bishops’ statement *Catholic schools at a crossroads*, the proposed new government funding models due for implementation from 2014 (Gonski 2011), the development and establishment of National Partnership agreements with rewards payments (COAG 2011, 2008c), the development and implementation of the National Curriculum for schools (MCEECDYA 2010), the implementation of outcomes reporting (COAG 2009a) and funding models and the recent stabilisation of ‘non-religious’ (lay teachers) staffing of Catholic schools.

The connection between social disadvantage and low academic performance is an established global phenomenon and Australia is not an exception (OCED 2009b; Thomson et al. 2011). Although accepting the validity of the correlation, this thesis maintains that there are measures that can be taken to address this unacceptable situation. The study also supports the proposition that the effects of lower socio-economic status on educational attainment may be somewhat controlled if the outcomes and causal factors are known, understood and better managed. OECD research indicates that many OECD countries are far better than Australia at establishing controls and implementing positive management of the negative effects on educational attainment in low SES circumstances (OECD 2009b). These international comparative measures show Australian education as one of low equity in provision, lacking inclusion and resulting in social reproduction (OECD 2009b). This thesis attempts to explore the extent to which NSW Catholic schools contribute to inequity, exclusivity and potentially to social reproduction.

Apparent retention may be one measure of an appropriate provision of suitable curriculum, accounting for other influences such as the state of the economy, youth unemployment, employment opportunity, changes in curriculum and external (non-curriculum) requirements placed on schools and students, such as change in the allowable school leaving age. If students are engaged and attracted to the curriculum on offer in an environment where they feel comfortable, they are more likely to remain at school (Helme et al. 2005).

Throughout the 1990s and the first decade of the new century, all levels of government implemented policy in an attempt to force a rise in school retention rates. As retention rates have remained relatively stable despite significant policy change and funding emphasis, government frustration has resulted in a move towards legislative change. State and territory governments in Australia, under some pressure from the commonwealth government, have raised the school leaving age to seventeen (COAG 2009a). Although requirements vary slightly across states and territories, the effect is largely the same; students are required to be at school or engaged in full time study and/or work until the age of seventeen. Due to continuing low
youth employment in Australia, students once termed ‘Year 10 leavers’ must return to school for their eleventh year of education (excluding kindergarten). In NSW this requires most students to enrol in the Preliminary study year (Year 11).

Legislating retention for some students is akin to a continuation of a sentence in an environment where they are uncomfortable, disengaged and sometimes rebellious.

Australian governments seemed to have agreed through the Council of Australian Governments (COAG) that a forced retention policy for Australian youth will deliver unilateral benefits. For there to be equity within this retention concept, students of all abilities and backgrounds should have equal choice. For there to be equal choice: the range and structure of curriculum would need to be offered to allow the offering to be considered ‘equally attractive’. In addition, students of all abilities and backgrounds would need to be ‘equally comfortable’ in making the choice to remain beyond the compulsory years of schooling. If students are entering their eleventh year of schooling only because legislative requires them to wait for their seventeenth birthday before they can abandon school, they are unlikely to be choosing the pathway. Retention under this circumstance is poor retention and it is established on inequality and inequity (Helme et al. 2005). Australian governments are convinced that increased retention is good policy and have been prepared to change legislation to achieve it. International comparisons show that countries with higher retention also have greater per capita Gross Domestic Product (GDP) (OECD 2009a). However it is not increased retention alone that produces the increase in GDP; it is also the quality of the retention. Where policy shift and legislative change focuses on increased retention and not on the quality of the retention, its worth must be questionable.

Government and the community may wish to celebrate lower youth unemployment rates by increasing retention but then again this may be moving unemployment towards a higher age demographic without great benefit to those ‘trapped’ at school if they are not truly engaging, learning and developing. Over recent times the poorly paid jobs available to early school leavers have become poorly paid jobs for school completers, and in particular, for females (Teese et al. 2004). This thesis argues that quality retention is a consequence of real student choice for appropriate and attractive educational content that results in quality outcomes.

Academic success could be used as a measure for good education and quality outcomes, as academic success is unlikely to result without student engagement (quality retention). The reverse may also be true for some students; where lack of academic success is not an indicator of their ability but an indicator of ‘poor retention’ where lack of interest is a consequence of poor choice and structures. This thesis now turns to a detailed analysis of the curriculum choices
in NSW Catholic schools in order to explore how these choices impact on the different student groups.
Chapter 5:

English

In NSW schools the study of English is compulsory in all years of schooling. For the years leading up to the School Certificate (Year 10) a common English curriculum is presented to all students. The provision of varying levels of difficulty in English at the Higher School Certificate level aims to allow students to engage with content appropriate to their ability and interest. It might be said that for the truly disengaged student it is impossible to provide an appropriate level inside contemporary senior curriculum which has strong theoretical emphasis (Teese & Polesel 2003). Debate continues in NSW as to the appropriate provision of English for the potentially disengaged, those with literacy levels below senior school English requirements and students from a non-English speaking background (BOS 2010). English is studied by all students and all students wishing to enter university must include 2 units of English in the calculation of their Tertiary Entrance Score (TES). The TES in 2008 was referred to as the University Admissions Index (UAI) for which English contributed a minimum of 2 HSC units of the 10 HSC units needed for the TES calculation. English enrolment is a ‘pattern of study’ requirement (refer to pages 60 & 61) of the NSW Board of Studies and the decision to include a minimum of 2 HSC units for the calculation of the TES is made by the University Admissions Centre (UAC). These decisions combine to elevate English to a unique status in the eyes of students, schools and the community (Watt 2008).

Being the only compulsory subject in the study for the HSC raises English to a ‘curriculum position’ that it does not occupy in the School Certificate where its compulsory status is shared with many other subjects. English sits alongside Mathematics, Science and Australian History, Geography, Civics and Citizenship as the compulsory subject group for examination and reporting in the School Certificate (Year 10). In addition to mandating examinable subjects, the NSW BOS requires schools to expose students to a wide range of curriculum across all Key Learning Areas (KLAs). These requirements are expressed through the mandating of content or hours of engagement within specific KLAs.

48 In 2006 the School Certificate English cohort of 82,873 comprised 42,090 boys (50.8%) and 40,783 girls (49.2%).
49 The contemporary term is the Australian Tertiary Admissions Ratio (ATAR).
Social patterns were evident in the Schools Certificate results for English for Catholic school students in 2006 (refer to Figure 5.1 below).

**Figure 5.1:** School Certificate grades for students in NSW Catholic schools by the highest and lowest quartiles of SEIFA Index of Relative Socio-economic Advantage and Disadvantage in 2006

(Data sources: Board of Studies NSW student records 2009 and ABS CCD data)

Students in the lowest SES quartile are almost twice as likely to be awarded a D or E (lowest grades) compared with students in the highest quartile. A fuller discussion of the connection of School Certificate results and progression to Year 11 is provided in Chapter 4. It should be noted that existing elements of social influence and inequity are likely to progress with the students into the senior school. It is not possible to ‘make a new start’ upon entry.

Due to the compulsory nature of English in the HSC (particularly for the calculation of the TES) some Catholic schools organise the school timetable to allow English to receive greater teaching time than HSC elective subjects. In these schools, it is thought that this practice maximises the potential for a high TES for their students.

Students preparing for the NSW HSC generally study examinable subjects over four school terms of ten weeks prior to sitting the state-wide public examinations in late October and November. The HSC preparation period includes the last term of the previous year and the three
terms of the HSC year prior to the public examinations. Most students concurrently study all subjects necessary for the award of the HSC, nevertheless, some choose to accumulate their HSC. These students are called ‘pathways students’ and the practice is referred to as a ‘pathways HSC’ (BOS 2005). Students in this program have up to five years to complete the HSC requirements. Due to the availability of the pathways option, the number of students enrolled for English in an examination year can potentially be smaller than the cohort total for the same year. However the total of individual English subject enrolments is generally higher than the total number of individual students as some students enrol in more than one English course of study (subject) within the HSC study year. All students choosing to study English Extension 1 and/or English Extension 2 must study English Advanced as a concurrent study.

In 2008, there were 17,476 individual subject enrolments in HSC English with approximately 6.2 per cent of Catholic school HSC students enrolled in more than one English subject. Girls (1089) in Catholic schools were almost twice as likely to do more than the minimum requirement of English (2 HSC study units) in their HSC subject package compared with boys (633). The Catholic school percentage (<10%) of students choosing to enrol in more than the compulsory requirement of English could be considered low when compared with the percentage for all students across the state - 11.5 per cent. Enrolments in English subjects by gender are presented in Table 5.1.
Table 5.1: NSW Catholic schools and NSW State HSC English enrolments by number and percentage, disaggregated by gender

<table>
<thead>
<tr>
<th>English subject</th>
<th>NSW Catholic schools</th>
<th>Whole of NSW</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Girls</td>
<td>Boys</td>
</tr>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>English Standard</td>
<td>4287</td>
<td>46.0%</td>
</tr>
<tr>
<td>English Advanced</td>
<td>3870</td>
<td>41.6%</td>
</tr>
<tr>
<td>English Extension 1</td>
<td>825</td>
<td>8.9%</td>
</tr>
<tr>
<td>English Extension 2</td>
<td>275</td>
<td>3.0%</td>
</tr>
<tr>
<td>English Life Skills</td>
<td>50</td>
<td>0.5%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>9307</td>
<td>100%</td>
</tr>
</tbody>
</table>

(Data source: Board of Studies NSW student records 2009 and reference BOS 2009b)

Table 5.1 shows that compared with all NSW students, students in NSW Catholic schools, in particular boys, are more likely to attempt English Standard, the least academically challenging level of English. The choice to engage with English at the lower academic level is more pronounced for boys in NSW Catholic schools. The majority of students in Catholic schools (52.2%) choose the minimum mandated engagement with English (2 HSC units) at the lowest possible level (English Standard). The literature suggests the likely explanation for this pattern of choice to be one or more of the following: lack of confidence, poor advice, small enrolment numbers preventing choice, perceived lack of teacher ability to teach the higher levels, an attempt to ‘play the system’ to maximise the TES or lack of student interest in the study of English (Cooney 2010 unpublished; Loch 2009). The pattern of enrolments in Table 5.1 suggests some students in Catholic schools ‘sell themselves short’ where they enrol in English subjects below their ability level when compared with the state enrolment percentages (Cooney 2010 unpublished).

Students in the study presenting for the HSC with learning support needs would generally be included within the enrolment for English Life Skills. The number of students in the HSC
English Life Skills (107) in 2008 compares favourably to the number (117\textsuperscript{50}) enrolled in the English Life Skills for the School Certificate in 2006; indicating sound retention of students with disabilities in the NSW Catholic schools system. As the number of students with special needs is increasing over time in NSW Catholic schools (refer to Figure 5.2), it is notable that the number and percentage of students with learning support needs moving beyond the compulsory years of schooling is not being limited by what might be termed ‘dated expectation’ (BOS 1999a) where students with learning support needs were not expected or encouraged to stay at school beyond the compulsory years.

**Figure 5.2: Enrolment of students with disabilities in NSW Catholic schools 1993-2011**

![Graph showing enrolment of students with disabilities in NSW Catholic schools 1993-2011](image)

(Data source: CEC NSW data record 1993 – 2011)

Of the 16,447\textsuperscript{51} Catholic schools students enrolling in the HSC in 2008, 15,932 (8,322 girls and 7,610 boys) enrolled in at least one English subject. 52.2 per cent of the total HSC English enrolment was girls (slightly higher than the NSW cohort percentage of 51.6%) and conversely for boys who represented 47.8 per cent of the English subject enrolment compared with 48.4 per

\textsuperscript{50} As explained in Chapter 3 schools with HSC enrolments of less than 15 were removed from the study. Two special schools were removed from the study and a further 17 students presented for the School Certificate from these two schools in 2006, making a total of 134 students in NSW Catholic schools.

\textsuperscript{51} Note this number is for enrolment, where students are enrolled in one or more HSC courses, of this number 15,828 completed the HSC program and were awarded a Higher School Certificate.
cent of the total cohort. Given that more boys left school early prior to HSC enrolment (26.3% compared with 17.3% of girls) in NSW Catholic schools, there may be two explanations for this slight disparity between the cohort percentage and the English enrolment percentage for girls (+0.4%) and boys (-0.6%). There may be more girls doing an accelerated HSC (doing ‘individual HSC subject(s)’ ahead of their age cohort) or boys may be more likely to be enrolled in a Pathways HSC (spread over more than two years) or a combination of both (BOS 2008a).

Of the girls presenting for the HSC in 2008, 98.1 per cent enrolled in at least one English subject compared with 95.5 per cent of boys. Given that some boys may be attempting English through an accelerated HSC study pattern, these statistics would seem to indicate that at least 5 per cent of boys enrol in a Pathways or an Accelerated HSC study program in NSW Catholic schools. This enrolment pattern is more pronounced in single sex boys schools where 7.9% of boys are not attempting English whilst enrolled for other HSC subject recognition. In single sex Catholic girls schools only 3% are following this pattern with a lower proportion (1.5%) of students in coeducational Catholic schools. Most single sex Catholic schools are Congregational (independent) Catholic schools where students are more likely to reside in advantaged households52. If you accept the premise presented earlier in the thesis that with advantage comes choice, it is not surprising that students in independent Catholic schools with higher than average SES are more likely to be attempting alternative HSC study patterns such as accelerated, pathways or compressed53.

HSC English students in metropolitan Catholic schools numbered 10,906 or 69.3 per cent of the Catholic schools’ total enrolment with the remaining 4,838 or 30.7 per cent presenting for HSC English from non-metropolitan Catholic schools. Of the total Catholic schools’ metropolitan enrolment 96.2 per cent studied English compared with 98.2 per cent in rural Catholic schools. It would seem to indicate that metropolitan students are more likely to be either attempting an accelerated, pathways or compressed HSC program. These specialist pathways are more than twice as likely amongst metropolitan boys (5.3%) than among girls (2.2%). One other explanation for this group (enrolled in HSC subjects but not studying English in 2008) might be the practice of the “compressed HSC” where students study all four HSC units for HSC recognition for fewer subjects over one year and sit examinations in two blocks in successive years. This research has not investigated the frequency of the “compressed HSC” enrolment in NSW Catholic schools. However it is reported to be rare for NSW Catholic schools to follow this delivery pattern. The exception is for very small enrolment subjects where some schools

52 As measured using SEIFA Index of Relative Socio-economic Advantage and Disadvantage
53 Students study half the number of subjects for twice the amount of time in two consecutive years and sit HSC exams in both years; effectively compressing the two year study program for selected courses into one year. This study pattern is uncommon in NSW Catholic schools.
may offer these subjects every second year to a combined Years 11 and 12 class cohort by covering the usual two year program\textsuperscript{54} in one year.

These data would seem to indicate that students in higher SES locations have greater choice of alternative pathways and curriculum packaging options even though alternatives may most benefit the less academically able to a greater extent (Lamb et al. 2004a).

Analysis of English subject enrolment by SEIFA Index of Socio-economic Advantage and Disadvantage quartiles showed a strong social pattern; refer to Table 5.2 below.

Table 5.2: Catholic school 2008 HSC English subject enrolments by SEIFA Index of Relative Socio-economic Advantage and Disadvantage quartiles

<table>
<thead>
<tr>
<th>English subjects</th>
<th>Lowest SEIFA* quartile</th>
<th>Lower-mid SEIFA* quartile</th>
<th>Upper-mid SEIFA* quartile</th>
<th>Highest SEIFA* quartile</th>
<th>Total %</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Standard</td>
<td>26.8%</td>
<td>25.2%</td>
<td>25.1%</td>
<td>22.9%</td>
<td>100%</td>
</tr>
<tr>
<td>English Advanced</td>
<td>17.6%</td>
<td>23.2%</td>
<td>26.4%</td>
<td>32.8%</td>
<td>100%</td>
</tr>
<tr>
<td>English Extension 1</td>
<td>17.1%</td>
<td>20.1%</td>
<td>28.7%</td>
<td>34.1%</td>
<td>100%</td>
</tr>
<tr>
<td>English Extension 2</td>
<td>20.0%</td>
<td>18.7%</td>
<td>29.5%</td>
<td>31.8%</td>
<td>100%</td>
</tr>
<tr>
<td>English Life Skills</td>
<td>37.1%</td>
<td>22.9%</td>
<td>20.0%</td>
<td>20.0%</td>
<td>100%</td>
</tr>
<tr>
<td>All English subjects</td>
<td>23.0%</td>
<td>24.3%</td>
<td>25.5%</td>
<td>27.2%</td>
<td>100%</td>
</tr>
</tbody>
</table>

(Data sources: Board of Studies NSW student records 2009 and ABS CCD data)

* Note: The *(SEIFA) Index used in this Table is the Relative Index of Socio-economic Advantage and Disadvantage as discussed in Chapter 2.

The link between English subject enrolments and SEIFA Index of Relative Socio-economic Advantage and Disadvantage (Table 5.2) shows that students from lower SES households tend to attempt less challenging English subjects. As might be expected, the analysis of English Advanced and English Extension enrolments shows a strong social trend where students from advantaged households are more likely to enrol in the more difficult English subjects.

Research conducted by McGaw in preparation for the review of the NSW HSC made reference to social patterns in HSC English and recommended the introduction of a new curriculum structure to encourage students from lower SES backgrounds to consider engaging with English at a higher academic level (McGaw 1997). McGaw’s recommended structure involved the

\textsuperscript{54} Subjects for the HSC require 120 hours per annum of face to face engagement, so in this example the school would be providing 240 hours of face to face instruction in one school year.
introduction of two English subjects set at different ability levels with roughly thirty per cent of overlapping content to enable the results for both subjects to be reported on the one scale. This structure was accepted by the Education Minister (Aquilina 1997) and implemented by the NSW Board of Studies in 2000.

Based on the information provided in Table 5.2 above, the introduction of Higher School Certificate reform in 2000 (the New HSC) has been unsuccessful in encouraging equity of enrolment by SES in more advanced programs of study in English in NSW Catholic schools if the percentage of enrolment is used as the measure. Table 5.2 indicates a strong social pattern with significant differences between enrolment percentages in SEIFA quartiles for English Standard and English Advanced. The pattern shown in Table 5.2 above suggests that NSW Catholic schools have been ineffective in the use of the new structure to support students from lower SES households to engage in more challenging levels of HSC English study.

In 2008, 85.6 per cent of English students enrolled for the HSC in NSW Catholic schools were enrolled in a ‘TES eligible HSC’ and conversely 14.4 per cent of English students were attempting a non-TES HSC subject package. Students attempting a non-TES HSC will generally be unable to attend university directly from school. This is due to the inability to meet the requirements for the calculation of the Tertiary Entrance Score (i.e. the inclusion of English and a minimum number of HSC units). The majority of ineligible students (non-TES candidates) were enrolled in more than one VET subject resulting in insufficient HSC units for the calculation of the TES. It should be noted that the result from only one VET subject can be included in the calculation of the TES (UAC 2010). As indicated earlier, to be eligible for a Tertiary Entrance Score (TES), a minimum of two HSC units of English must be included in the calculation. Given TES eligibility, when examining English enrolments by quartiles of TES aggregate performance (lowest to highest), we find that English as a KLA was spread evenly across the quartiles with 25 per cent of English students in each quartile. However the correlation varied significantly when individual English subjects were mapped by TES outcome as Table 5.3 below shows.
Table 5.3: NSW Catholic schools 2008 HSC English subjects by quartile of aggregate TES performance

(Data sources: Board of Studies NSW student records 2009 and ABS CCD data)

Note: * TES is the aggregate TES not the individual subject TES as aggregate TES is a better measure of a students’ overall ability.

Table 5.3 shows that students studying English at the higher levels benefit in the calculation of the aggregate TES with 75.9% of students attempting advanced English achieving grades in the upper two quartiles of TES performance. The outcome is even more pronounced for English extension subjects (1 or 2) where 88.6 and 90.2 per cent of students are represented in the upper two quartiles of TES performance. Almost three quarters (73.3%) of students who studied English Standard as their mandatory HSC English subjects gained a TES outcome in the lower two quartiles of TES performance.

Although the patterns displayed here for both enrolment and outcomes are not unexpected, the strength of the patterns would be a disappointment to many, as McGaw (1996) recognised these same patterns and recommended the New HSC structure (introduced into NSW schools in 2000) as an attempt to address what was referred to as equity issues in Securing Their Future (Aquilina 1997).

“These strategies (the New HSC strategies) will be designed to move away from a system that permits students’ social; and economic background, and their geographic location, to determine the quality of their education experience.”

(Securing Their Future, Aquilina 1997, p.5)

Another method of measuring social trends in education is to map social variables (e.g. SEIFA Index of Socio-economic Advantage and Disadvantage) against student enrolment and/or performance in a scatter plot. By mapping individual school enrolment by Key Learning Area or by individual subjects against the SEIFA Index on a scatter plot, a more detailed depiction of
social trends is obtained; Figure 5.3 below is such a plot for English Standard. The introduction of individual schools into the analysis of enrolment and SES provides a measure of student access as well as an insight into equity principles at the school level. Scatter plots (scattergrams) are a graphical representation of the trends only. They do not explain the trend, so conclusions or further analyses using alternative techniques are often necessary.

To produce this particular scatter plot the individual school percentage of student enrolment in English Standard is plotted against the mean SEIFA Index of Socio-economic Advantage and Disadvantage for the same individual school\textsuperscript{55}.

**Figure 5.3: Scatter plot with regression for NSW Catholic school mean SEIFA Index of Relative Socio-economic Advantage and Disadvantage by percentage of school enrolment in English Standard**

\[
y = -0.0006x + 1.1486
R^2 = 0.1298
\]

(Data sources: Board of Studies NSW student records 2009 and ABS CCD data)

\textsuperscript{55} Mean SEIFA Index of Socio-economic Advantage and Disadvantage for an individual school is obtained by aggregating the Index measure for all HSC students in the school and dividing the aggregate by the number of HSC students.
The trend line on this scatter plot indicates that students in NSW Catholic schools from ‘disadvantaged’ households are more likely to enrol in the lowest level of English (Standard) when compared with their advantaged peers. The enrolment rates vary significantly across schools, on average 55 per cent of students in individual Catholic schools enrol in English Standard. Schools above this average are more likely to enrol a higher proportion of students from lower SES households. Schools with greater than average mean SEIFA Index (1018) are less likely to have a majority of students enrolled in English Standard but instead they are found in English Advanced (refer to Figure 5.4 below).

When the same analysis is applied to English Advanced the social trend is reversed as shown in Figure 5.4 below where the trend line indicates that students living in advantaged households are more likely to enrol in the more difficult English subject (English Advanced).

**Figure 5.4: Scatter plot with regression for NSW Catholic school mean SIEFA Index of Relative Socio-economic Advantage and Disadvantage by percentage of school enrolment in English Advanced**

(Data sources: Board of Studies NSW student records 2009 and ABS CCD data)

A comparative measure of the strength of the social trend can be derived by measuring and comparing the slope of the regression line ($R^2$); the greater the slope ($R^2$) the greater the strength of the social trend. In this manner, the strength of the social trend can be compared. Comparisons for all English subjects showed that this social trend is also pronounced for
students enrolled in English Extension 1 and English Extension 2 (refer to Table 5.4 below). Table 5.4 indicates that students from advantaged households in NSW Catholic schools were more likely to enrol in an Extension English subject\textsuperscript{56}.

**Table 5.4: NSW Catholic schools English subject enrolments and regression**

\[ (R^2 = \text{strength of social trend}) \]

<table>
<thead>
<tr>
<th>English subject</th>
<th>Total enrolment</th>
<th>Total enrolment percentage</th>
<th>Strength of social trend ((R^2))</th>
</tr>
</thead>
</table>
| English Standard        | 9117            | 55.4% [47.8%]              | \(R^2 = 0.1298\)
|                         |                 |                            | towards low SES                           |
| English Advanced        | 6519            | 39.6% [40.7%]              | \(R^2 = 0.1025\)
|                         |                 |                            | towards high SES                          |
| English Extension 1     | 1283            | 7.8% [8.5%]                | \(R^2 = 0.0697\)
|                         |                 |                            | towards high SES                          |
| English Extension 2     | 450             | 1.7% [3.3%]                | \(R^2 = 0.0187\)
|                         |                 |                            | towards high SES                          |

(Data source: Board of Studies NSW student records 2009)

**NOTE:** “[..%]” denotes the state percentage inclusive of all students

Although both extension English subjects indicate social trends, English Extension 2 is less pronounced when compared with English Extension 1 (refer to Figure 5.5 below). English Extension 2 requires the student to produce a major work and does not require a final examination as does English Extension 1. Students from disadvantaged households seem to be more comfortable choosing a subject with assessment by submission of a major work over one where assessment is by examination of additional content.

\textsuperscript{56} Students enrolling in an Extension English course must also enrol in English Advanced
Figure 5.5: Scatter plot with regression for NSW Catholic school mean SIEFA Index of Relative Socio-economic Advantage and Disadvantage by percentage of school enrolment in English Extension 1 (Series 1) and English Extension 2 (Series 2)

(Data sources: Board of Studies NSW student records 2009 and ABS CCD data)

For students in NSW Catholic schools, as the SES of the students’ household rises, so does the likelihood of the student enrolling in higher levels of English for the NSW HSC.

When analysis moves beyond enrolment to performance (results), the advantaged students (those from higher SES households) are seen to be advantaged further. Although being the minority enrolment in English Standard, students from advantaged households significantly outperform those from disadvantaged households. When achievement in English Standard is mapped against background, as in Figure 5.6 below, the trend is opposite to that of the enrolment plot. Although students from higher SES (advantaged) households less likely to be doing the lower level of English (Standard) nevertheless when they do, they outperform students from lower SES households.
These analyses indicate that there are NSW Catholic schools with students from low SES households that perform well above the trend found for the sector (e.g. schools where the percentage of enrolment in the advanced English subjects is high and the school mean SES is low. Also there are examples of strong performance in English Advanced by schools with low mean household SES) (refer to Figure 5.7 below). These ‘outliers’ indicate that it is possible to deliver good outcomes in disadvantaged circumstances - where disadvantage can be overcome to produce both enrolment patterns and performance outcomes against the social trend.
English subjects have a hierarchy in perception and reality. English at the higher levels would seem to be more accessible to the advantaged who are rewarded for this opportunity by better Tertiary Entrance Scores on average (refer to Figure 5.8 below).
Being a compulsory subject in the HSC, English showed an even social spread of enrolment within the Key Learning Area (all English subjects). However students from disadvantaged backgrounds are over represented in the low status / low result English subject (English Standard).

In summary, the direct correlation between socio-economic status and English subject enrolment is established through analysis of the data, whereby students from lower SES households are over represented in the less academic English subjects. Students from low SES backgrounds achieve academic outcomes below those of their peers at all levels of English including at the School Certificate.
Chapter 6:

Mathematics

Mathematics is an elective subject in the study of the NSW Higher School Certificate (HSC). However, across all schools it is chosen by the majority of students - 48,307 (71.1 per cent) in the 2008 HSC (BOS 2008b). As a subset of the state 2008 HSC enrolment, students in NSW Catholic schools were even more likely to enrol in the Mathematics KLA with 12,912 or 78.5 per cent enrolling in at least one mathematics subject.

The HSC curriculum developed by the NSW Board of Studies offers a range of subjects for engagement at differing levels of mathematical ability. Prior to the restructure of the HSC in 2000, a wider range of HSC mathematics subjects was available for use in NSW schools. Four of the five mathematics subjects available at the time (1999) had been delivered in schools for over two decades with the fifth and lowest academic level subject being an addition from 1991. This subject was included to accommodate the increasing numbers of less mathematically able HSC students wishing to engage with mathematics (McGaw 1996).

In leading the restructure of the NSW HSC, McGaw believed that the two lowest ability level mathematics subjects were unnecessary and in fact were attracting students away from more appropriate engagement with mathematics subjects that were developed for higher ability mathematics students (McGaw 1997). As a consequence of the restructure, two mainstream mathematics subjects with some common content were developed, as was the case in English. Prior to the restructure, in the 1999 HSC, 89.3 per cent of HSC students were enrolled in at least one mathematics subject. A decade later this percentage had dropped to 71.1 per cent of students (BOS 2008a, 1999b). In 1999, NSW had a higher proportional enrolment in the study of senior mathematics than all other states and territories of Australia, other than the Australian Capital Territory (Ainley 2003).

57 Although the names of courses varied over this time, the content of the various levels remained relatively consistent.
58 The restructure occurred over a four year period, starting with research in 1996 and ending with the implementation of changes into Year 11, 2000.
After the introduction of the range of restructured mathematics subjects in 2000, many NSW schools judged the lowest level of mathematics (Mathematics General) as beyond the ability of their less capable students. Schools also found that the content of the ‘updated’ Mathematics General did not reflect current uses of technology and contemporary applications of mathematics (Coupland 2006). Many schools found it necessary to apply to the NSW Board of Studies (BOS) seeking to deliver less challenging subjects developed and/or registered by the school. These ‘locally designed’ courses (subjects) (often very similar in content to the lower level subjects delivered prior to the restructure of the HSC) are termed Board Endorsed Courses (BECs). These subjects are included in the students’ study program as HSC units for the award of the Higher School Certificate but cannot be included in the calculation of the Tertiary Entrance Score (TES). Even with the availability of BEC mathematics subjects, schools found that many less-able mathematics students were still choosing the BDC mathematics subjects beyond their ability as they did not want to forgo their opportunity for the calculation of TES that may allow them to be considered for university entry. Due to this reason and the proliferation of BEC applications in this curriculum ‘space’, the NSW BOS felt obliged to consider the development of a Board Developed Course (BDC) for less able HSC mathematics students as this would potentially allow the new subject to be used in the calculation of a TES. To meet this demand in 2006, the BOS developed a mathematics subject requiring lower mathematical ability than was available at the time (BOS 2006). During development, the subject carried the draft title of *Non-calculus Mathematics*. Although the subject was fully developed, it had not been released for implementation whilst the NSW BOS waited for the release of the Australian Curriculum (BOS 2009b). It was thought that a subject provided through the Australian curriculum development processes might fulfil the need that *Non-calculus Mathematics* was developed to address (BOS 2009b). It could be debated that students with lower level mathematics ability have been denied access to mathematics subjects with status for over a decade.

There are four BDC mathematics subjects available to students in NSW schools for recognition as both HSC units of study and for inclusion in the calculation of the Tertiary Entrance Score (TES). Mathematics General is the least academically challenging subject and it has some common content with mathematics. This common content allows the assessment of the two subjects to be placed on a common assessment scale for both HSC and TES recognition. Two extension subjects are available to students with higher-level mathematics ability and interest,

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59 Board developed courses (BDC) carry greatest status due the fact they contribute to the university entry process.
Mathematics Extension 1 and Mathematics Extension 2. To enable enrolment in Mathematics extension subjects, a student must also be concurrently enrolled in Mathematics (BOS 2005).

Without understating the importance of mathematics and numeracy, the relatively high enrolments (comparative to other elective subjects) in senior school mathematics subjects might, in part, be a consequence of Mathematics being a compulsory subject in all years prior to the point at which students select their senior school subjects (BOS 2005). The study of Mathematics is compulsory in NSW schools in the years leading to the award of the School Certificate (Year 10); until the age of sixteen, on average. This ‘residual effect’ on students’ subject selection might also be reinforced by society, schools and parents. For preceding generations in NSW, mathematics along with English was compulsory, even in the post-compulsory years of schooling, possibly resulting in a residual social impression as to the importance of senior school mathematics for a successful school experience and career progression. Noting that parents (mothers in particular) have the strongest influence on subject selection (refer to Chapter 9) it may be that students were prompted to engage in mathematics based on perception and dated experience and knowledge.

As indicated in Chapter 9, students’ choice of senior school subjects are influenced by their likes and interests and their attempts to maximise TES, with greater than 65 per cent of students in the survey reporting that their School Certificate results had little or no influence on their senior subject choices. As the correlation between School Certificate Mathematics grades and the level of senior school mathematics enrolment is significant, it might be deduced that senior school mathematics subjects are somewhat self-selecting where those with higher level ability in the School Certificate are more likely to be found in the higher level HSC subjects. This is not surprising, nonetheless, the strength of the correlation is noteworthy with all except 0.01 per cent of students enrolled in extension mathematics subjects having been awarded an A or B in the School Certificate Mathematics (refer to Figure 6.1 below).
In 2008, there were at least 14,536 enrolments in the HSC mathematics subjects in NSW Catholic schools with a HSC cohort of 16,447 students. The individual mathematics subject enrolments with 'substantial' enrolment numbers are shown in Table 6.1 below.

(Data source: Board of Studies NSW student records 2009)
Table 6.1: NSW Catholic school enrolment by gender for subjects within the Mathematics Key Learning Area

<table>
<thead>
<tr>
<th>Mathematics subject</th>
<th>Enrolments by boys</th>
<th>Enrolments by girls</th>
<th>Total</th>
<th>Percentage of all mathematics enrolments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics General</td>
<td>4,151</td>
<td>4,065</td>
<td>8,216</td>
<td>56.9% [50.0%]</td>
</tr>
<tr>
<td>Mathematics</td>
<td>2,290</td>
<td>1,780</td>
<td>4,070</td>
<td>28.2% [28.8%]</td>
</tr>
<tr>
<td>Mathematics Extension 1</td>
<td>980</td>
<td>665</td>
<td>1,645</td>
<td>11.4% [11.3%]</td>
</tr>
<tr>
<td>Mathematics Extension 2</td>
<td>275</td>
<td>172</td>
<td>447</td>
<td>3.1% [5.2%]</td>
</tr>
<tr>
<td>Mathematics Applied (Board Endorsed Course)</td>
<td>36</td>
<td>49</td>
<td>85</td>
<td></td>
</tr>
<tr>
<td>Mathematics Life Skills*</td>
<td>45</td>
<td>28</td>
<td>73</td>
<td>0.5% [1.8%]</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>7,777</strong></td>
<td><strong>6,759</strong></td>
<td><strong>14,536</strong></td>
<td><strong>100.0% [100.0%]</strong></td>
</tr>
</tbody>
</table>

(Data source: Board of Studies NSW student records 2009)

**NOTE:**

“[.. %]” denotes the state percentage inclusive of all mathematics students for mathematics subjects where data are available.

* Although Mathematics Life Skills is not an open enrolment subject, being available only to students with intellectual support needs, it is included for comparative purposes in some Figures and Tables provided.

When participation with mathematics by gender is analysed for the 2008 HSC in NSW Catholic schools (refer to Figure 6.2 below), boys dominated mathematics enrolments in all subjects and the proportion of boys increased as the difficulty of the subject increased. This is consistent with the findings of a study conducted by Watt in 2005 (Watt 2005).
Boys were more likely to do the lower level of HSC mathematics (Mathematics General) when compared with girls in NSW Catholic schools for the 2008 HSC. However, it should be noted that boys dominated enrolments in all levels of mathematics except Mathematics Applied which had a very low non-open enrolment and can be disregarded in this analysis. Half of all HSC students in NSW Catholic schools in 2008 choose the minimum engagement with mathematics (2 HSC units) at the lower ability level (Mathematics General). Figure 6.3 below shows a comparison of gender percentage by subject for both Catholic school students and all NSW students.

(Data source: Board of Studies NSW student records 2009)

61 Mathematics Applied is an example of a less challenging school developed Board Endorsed Course and is offered in only a few schools.
The pattern of enrolments in Table 6.1 (enrolment numbers) and Figure 6.3 (above) may indicate that boys in NSW Catholic schools might be choosing mathematics subjects below their ability level if comparison with the state enrolment percentages is used as a measure. Boys in Catholic schools in 2008 enrolled in all HSC mathematics subjects at levels above the state percentage other than in Mathematics Extension 2. Girls in Catholic schools showed the reverse pattern where they were under-represented in Mathematics General compared with the state average percentage. However it should be noted that girls were also under-represented in all levels of mathematics except Mathematics Extension 2 where the female enrolment in NSW Catholic schools was relatively low at 172 students (2% of all girls) and might be considered an insignificant finding from this analysis.

There were 12,912 students (6,102 girls and 6,810 boys) enrolled in at least one of the 2008 HSC mathematics subjects in NSW Catholic schools. The percentage of all girls in NSW Catholic schools studying mathematics (72.0%) was lower than for the boys where 85.5 per cent attempted a mathematics subject. Boys seem to be attracted to mathematics more so than girls in NSW Catholic schools. This pattern aligned with the state engagement pattern by gender of
mathematics students in the 2008 HSC with 70.1 per cent of girls and 81.1 per cent of boys attempting at least one mathematics subject (BOS 2008a).

Further analysis by gender percentages within mathematics subjects for students in Catholic schools compared with the rest of the state is shown in Figure 6.4 below.

**Figure 6.4: Gender percentage enrolment distribution within 2008 HSC mathematics subjects for NSW Catholic schools and all other NSW schools**

The enrolment proportion was similar for boys and girls studying HSC mathematics in NSW Catholic schools in 2008. As mathematics subjects became more difficult, fewer students of both genders in Catholic schools (as a proportion of all students) enrolled. The trend was less pronounced for girls in Catholic schools at the highest level of difficulty (Mathematics Extension 2). However this finding might be an aberration as mentioned above. As was the case for the 2008 HSC English cohort (refer Chapter 5 and Table 5.1), students in Catholic schools were more likely to be attempting a lower ability level of mathematics when compared with all students in the 2008 HSC.

In summary; students of both sexes in NSW Catholic schools were more likely to choose to study mathematics than was the case for the total 2008 HSC student population. Upon choosing
mathematics, both boys and girls were more likely to be studying a lower ability level subject when compared with the rest of the State.

As in English, this might be explained by one or more of the following: lack of confidence, poor or conflicting advice, small enrolment numbers preventing choice, perceived lack of teacher ability to teach the higher levels, non-availability of mathematics teachers to teach the higher levels, an attempt to ‘play the system’ to maximise the TES, lack of student interest in the study of mathematics or others reasons. Cooney 2010 (unpublished) recognises the under-representation of students in the more challenging mathematics subjects and recommends school-based research may provide insight into the causes.

Students were more likely to study mathematics if attending a single sex Catholic school where 86.3 per cent of students in boys-only schools attempted at least one mathematics HSC subject and in Catholic girls schools the enrolment percentage for the 2008 HSC was only shades higher than 72 per cent. As most single sex schools in the NSW Catholic sector are independent (congregational) schools that display socio-economic measures above the average, the slightly higher engagement with mathematics in single-sex schools may be the result of social influence rather than the effect of school type.

There have been many studies on the gender disparity in mathematics subject enrolments. The accepted explanations for the predominance of males in elective mathematics programs include: boys perceiving mathematics to have greater intrinsic value than girls (Benbow & Minor 1994; Updegraff et al. 1996; Watt 2005); the higher self-perception of mathematical ability in boys (Eccles et al. 1989; Wigfield 1994; Singer & Stake 1986); boys liking mathematics more than girls (Hilton & Berglund 1974; Benbow & Stanley 1984; Undegraff et al. 1996; Fredricks & Eccles 2002; Watt 2005); and girls being discouraged more than boys by the lack of personal relevance, familiarity, novelty, activity level and comprehensibility in mathematics itself or in the manner in which mathematics is taught to them (Hidi & Baird 1986; Friedman 1989; Vida & Eccles 2003).

It would seem that girls show less confidence in their ability to manage all levels of mathematics based on the school certificate results and HSC mathematics enrolments (refer to Figure 6.5 below). This figure shows that the ability of girls that choose to do senior school mathematics was proportionally greater than for boys in like subjects based on School Certificate performance.
Enrolment in Mathematics Life Skills is reserved for students requiring learning support. This small group (73) was dominated by boys (45) compared to girls (28). Using enrolment in English Life Skills as the baseline (as English is compulsory in the NSW HSC), it would seem that approximately 70 per cent of HSC students with learning support needs attempted mathematics in the 2008 HSC. Stakeholders in school education in NSW responded to the challenge of the HSC reform paper *Securing Their Future* to provide HSC curriculum and structures that encourage students with learning support needs to progress beyond the compulsory years of schooling (Aquilina 2007). Unlike the HSC curriculum structure prior to 2000, choice of electives helps to encourage students with learning support needs to stay in schooling beyond the compulsory years. In the case of mathematics it would seem that boys with learning support needs are more comfortable choosing mathematics than are girls or that

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62 It should be noted that students from two small special schools have been withdrawn from the study for reasons described in Chapter 3.
girls in the study have other choices which are more attractive to them than mathematics when compared with boys. Also the gender disparity in this sub-group is likely to be explained for the same reasons as is the case discussed above for the general population.

Mathematics students in metropolitan Catholic schools comprised 68.8 per cent (8,883) of the total mathematics cohort with the remaining 30.1 per cent (2,881) presenting for the 2008 HSC from Catholic schools located in rural locations. Of the total metropolitan enrolment, 78.4 per cent studied mathematics compared with 78.8 per cent in rural Catholic schools. When viewed collectively, this finding would seem to indicate that the manner in which mathematics is offered and selected is consistent in the NSW Catholic schools system but a subject and gender analysis of these data showed difference between the genders in metropolitan and rural schools. Figure 6.6 below, shows 2008 HSC mathematics subject enrolments by subject and gender for metropolitan and rural Catholic schools in NSW.

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63 It is noted for the enrolment in English Life Skills, that the number of boys with intellectual disability (57) only slightly outnumbers girls (50).
64 1.1% of students are not recorded as metropolitan or country due to lack of access to accurate residential information. An example may be that the student address is listed as a post office box in the postal address data field negating accurate geo-coding by residential address.
In 2008 a higher proportion of girls in rural NSW Catholic schools choose to enrol in HSC mathematics subjects than girls in metropolitan Catholic schools. Girls in metropolitan Catholic schools were more likely to either choose to study or have greater access to Mathematics Extension 2 when compared with girls in rural Catholic schools. As enrolment trends for boys do not show the same pattern the trend for girls as described above is more likely to be explained by choice rather than lack of access. Social patterns also become less evident as the difficulty of the Mathematics course increases due to the pre-selection driver of performance in Year11 Mathematical courses and the School Certificate.

Mathematics is not a compulsory component for the calculation of the Tertiary Entrance Score (TES). Analysis of the percentage of mathematics students eligible for a TES compared to the whole cohort might indicate if the desire for a TES is a motivation in the selection of mathematics. In 2008, 83.1 per cent of students enrolled for the HSC in NSW Catholic schools...
were enrolled in a ‘TES eligible’ HSC and students studying mathematics showed a slight bias towards engaging with a TES HSC at 87.8 per cent\(^65\).

Analysis of TES (aggregate\(^66\) for all eligible students by level of performance (quartiles from lowest to highest) showed that mathematics achievement as a KLA (all mathematics subject enrolments as one group) is relatively evenly spread across the quartiles with a 2.5 per cent variance between students in the lowest (23.3%) and highest (25.8%) quartiles. This may indicate that mathematics in general is less likely to be chosen by less-able students. However as Table 6.2 below shows, when the analysis is conducted at the individual subject level, the relationship between aggregate TES performance and the type of mathematics subjects chosen varies considerably.

### Table 6.2: Percentage of NSW Catholic school 2008 HSC mathematics subject enrolments by aggregate TES performance quartiles

<table>
<thead>
<tr>
<th>Mathematics subject</th>
<th>Lowest TES quartile%</th>
<th>Lower-mid TES quartile%</th>
<th>Upper-mid TES quartile%</th>
<th>Highest TES quartile%</th>
<th>Total students enrolled</th>
<th>Total eligible for a TES (% of enrolment)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics General</td>
<td>33.8%</td>
<td>30.2%</td>
<td>24.1%</td>
<td>11.9%</td>
<td>100%</td>
<td>8,216</td>
</tr>
<tr>
<td>Mathematics</td>
<td>5.7%</td>
<td>17.8%</td>
<td>30.9%</td>
<td>45.6%</td>
<td>100%</td>
<td>4,070</td>
</tr>
<tr>
<td>Mathematics Extension 1</td>
<td>1.4%</td>
<td>6.9%</td>
<td>19.2%</td>
<td>72.5%</td>
<td>100%</td>
<td>1,645</td>
</tr>
<tr>
<td>Mathematics Extension 2</td>
<td>0.7%</td>
<td>2.8%</td>
<td>8.9%</td>
<td>87.6%</td>
<td>100%</td>
<td>447</td>
</tr>
<tr>
<td>All mathematics students</td>
<td>23.3%</td>
<td>25.1%</td>
<td>25.7%</td>
<td>25.9%</td>
<td>100%</td>
<td>14,378</td>
</tr>
</tbody>
</table>

(Data sources: Board of Studies NSW student records 2009)

Students capable of mathematics study at the higher levels were rewarded in the calculation of the TES with 76.5% of students attempting the more advanced mathematics subject in the upper two quartiles of TES performance. The outcome was even more pronounced for mathematics extension subjects where 91.6 and 96.5 per cent of students were represented in the upper two quartiles of aggregate TES performance. Mathematics General displayed the opposite pattern with the bulk (64.0%) of students in the lower two quartiles of aggregate TES performance. It is

\(^65\) This percentage is inclusive of all mathematics enrolments, BDC and BEC mathematics and varies from the percentage total in Table 6.1 because this is reflective of BDC enrolments only.

\(^66\) TES used in this measure is the Aggregate TES calculated from the results of 10 HSC units. This measure is a better measure of a student’s general ability than a single subject TES score.
noteworthy that as the difficulty of the mathematics curriculum increased so did the percentage of students enrolled in a TES-eligible HSC. Students ineligible and yet studying the higher order mathematics (Extension 1 and Extension 2) were most often students enrolled in an accelerated HSC program. The pattern is reflective of expectation; where brighter students choose more difficult subjects for which they were rewarded in comparative measures such as the Aggregate TES. This effect and the strength of the pattern are statistically significant.

A measure of the socio-economic effect on mathematics subject enrolment is shown in Table 6.3 below, which shows SEIFA Index of Relative Socio-economic Advantage and Disadvantage quartiles for all 2008 HSC students by mathematics subject enrolments.

**Table 6.3: Percentage of NSW Catholic school mathematics subject enrolments by SEIFA Index of Relative Socio-economic Advantage and Disadvantage quartiles**

<table>
<thead>
<tr>
<th>Mathematics subject</th>
<th>Lowest SEIFA quartile%</th>
<th>Lower-mid SEIFA quartile%</th>
<th>Upper-mid SEIFA quartile%</th>
<th>Highest SEIFA quartile%</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics General</td>
<td>26.7%</td>
<td>26.3%</td>
<td>24.7%</td>
<td>22.3%</td>
<td>100%</td>
</tr>
<tr>
<td>Mathematics</td>
<td>20.7%</td>
<td>22.6%</td>
<td>25.0%</td>
<td>31.7%</td>
<td>100%</td>
</tr>
<tr>
<td>Mathematics Extension 1</td>
<td>20.0%</td>
<td>20.5%</td>
<td>24.2%</td>
<td>35.3%</td>
<td>100%</td>
</tr>
<tr>
<td>Mathematics Extension 2</td>
<td>17.4%</td>
<td>20.2%</td>
<td>25.5%</td>
<td>36.9%</td>
<td>100%</td>
</tr>
<tr>
<td>All mathematics students</td>
<td>25.4%</td>
<td>25.2%</td>
<td>25.3%</td>
<td>24.1%</td>
<td>100%</td>
</tr>
</tbody>
</table>

(Data sources: Board of Studies NSW student records 2009 and ABS CCD data)

The pattern is apparent. Students from disadvantaged households outnumbered students from advantaged households only in the lower ability mathematics subject (Mathematics General). As the mathematics subjects became more difficult the gap between disadvantage and advantage increased.

To examine socio-economic effects within subjects, an analysis of Mathematics General and Mathematics TES (subject\(^67\)) performance by SEIFA Index of Relative Socio-economic Advantage and Disadvantage quartiles was undertaken. In the case of Mathematics General, the pattern obtained showed similar distribution to that of English Standard. Table 6.4 below shows the distribution for Mathematics General with predominance towards the lower SEIFA quartile,

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\(^{67}\) Subject Tertiary Entrance Score (TES) is the outcome for the individual subject after it is scaled against all other HSC subjects. This measure is useful for comparison within the cohort in individual subjects.
confirming the “double disadvantage paradigm” where students from the most disadvantaged household were more likely to be enrolled in the lower level of mathematics and achieve an outcome in the lower quartiles for performance.

### Table 6.4: Percentage of NSW Catholic school Mathematics General students by TES performance quartile and SEIFA Index of Socio-economic Advantage and Disadvantage quartiles

<table>
<thead>
<tr>
<th>Mathematics General</th>
<th>Lowest TES quartile%</th>
<th>Lower-mid TES quartile%</th>
<th>Upper-mid TES quartile%</th>
<th>Highest TES quartile%</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest SEIFA quartile</td>
<td>8.4%</td>
<td>7.1%</td>
<td>5.7%</td>
<td>4.9%</td>
<td>26.2%</td>
</tr>
<tr>
<td>Lower-mid SEIFA quartile</td>
<td>7.4%</td>
<td>6.7%</td>
<td>6.1%</td>
<td>5.9%</td>
<td>26.0%</td>
</tr>
<tr>
<td>Upper-mid SEIFA quartile</td>
<td>5.6%</td>
<td>6.3%</td>
<td>6.4%</td>
<td>6.7%</td>
<td>25.0%</td>
</tr>
<tr>
<td>Upper SEIFA quartile</td>
<td>3.6%</td>
<td>5.0%</td>
<td>6.5%</td>
<td>7.7%</td>
<td>22.8%</td>
</tr>
<tr>
<td>Total</td>
<td>25.0%</td>
<td>25.1%</td>
<td>24.7%</td>
<td>25.2%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

(Data sources: Board of Studies NSW student records 2009 and ABS CCD data)

Note: Whilst 8,216 were enrolled in Mathematics General only 6,899 were included in this calculation either because the student was TES ineligible or SEIFA could not be calculated as not all student address were available for geo-coding.

Social trends were also examined in Mathematics (a more academically challenging subject) as shown in Table 6.5 below. Once again social trends were evident where advantage allowed greater access to higher ability subjects and produced stronger outcomes as measured through subject TES.
Table 6.5: Percentage of NSW Catholic school students by TES performance quartile in Mathematics and SEIFA Index of Socio-economic Advantage and Disadvantage quartiles

<table>
<thead>
<tr>
<th>Mathematics</th>
<th>Lowest TES quartile%</th>
<th>Lower-mid TES quartile%</th>
<th>Upper-mid TES quartile%</th>
<th>Highest TES quartile%</th>
<th>TOTAL*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest SEIFA quartile</td>
<td>6.5%</td>
<td>5.0%</td>
<td>4.5%</td>
<td>4.9%</td>
<td>20.8%</td>
</tr>
<tr>
<td>Lower-mid SEIFA quartile</td>
<td>5.7%</td>
<td>6.2%</td>
<td>6.0%</td>
<td>4.7%</td>
<td>22.6%</td>
</tr>
<tr>
<td>Upper-mid SEIFA quartile</td>
<td>6.1%</td>
<td>6.6%</td>
<td>6.1%</td>
<td>6.0%</td>
<td>24.8%</td>
</tr>
<tr>
<td>Upper SEIFA quartile</td>
<td>6.3%</td>
<td>7.2%</td>
<td>8.6%</td>
<td>9.6%</td>
<td>31.7%</td>
</tr>
</tbody>
</table>

(Total*) | 24.6% | 25.1% | 25.1% | 25.2% | 100%

(Data sources: Board of Studies NSW student records 2009 and ABS CCD data)

Note: Some totals may not compute due to rounding.

As discussed in the previous chapter on English, the extent (strength) of the social trend can be measured by mapping an individual school’s enrolment percentage in individual subjects against the average SEIFA Index of the school on a scatter plot. The strength of the social trend is represented by the slope of the regression line produced in the plot.

Figure 6.7: Scatter plot with regression for NSW Catholic school mean SEIFA Index of Socio-economic Advantage and Disadvantage by student percentage enrolment in Mathematics General in the school

(Data sources: Board of Studies NSW student records 2009 and ABS CCD data)
Figure 6.7 shows that at the school level, students from disadvantaged households (as measured by SEIFA) had a relatively strong trend to enrol in Mathematics General when compared with students from advantaged households. However this was not the case for enrolment in the Mathematics subject as shown in Figure 6.8 below where the trend is reduced yet not reversed.

**Figure 6.8: Scatter plot with regression for NSW Catholic school Mean SEIFA Index of Socio-economic Advantage and Disadvantage by student percentage enrolment in Mathematics**

(Data sources: Board of Studies NSW student records 2009 and ABS CCD data)

As mathematics subjects became more ‘difficult’, enrolment patterns showed greater participation by students from ‘advantaged’ households for 2008 HSC students in NSW Catholic schools. Although the phenomenon is not surprising; an equitable education system may not be able to accept such enrolment trends. Another indicator of the strength of the social trend might be obtained by conducting a similar analysis of the performance (TES subject results) for subjects; plotting in the same manner as for enrolment. Figure 6.9 below is such a plot for Mathematics General. To produce this scatter plot the mean Mathematics General (subject) TES result for students within a school was plotted against the mean SEIFA Index of Socio-economic Advantage and Disadvantage for the same school.

68 There is debate that mathematics extension courses offer students with an interest in mathematics the opportunity to study more Mathematics and not necessarily ‘harder’ content. The manner in which mathematics extension courses are offered and taught may contradict this perception.
The regression line ($R^2 = 0.1999$) for the plot indicates that students from advantaged households significantly out-performed those from disadvantaged households, remembering that the enrolment plot showed a positive weighting towards lower SEIFA Index and higher enrolment. Although not as pronounced ($R^2 = 0.0572$), the trend in Mathematics (refer to Figure 6.10 below) shows that students from advantaged households were rewarded with higher TES results.
Regression analysis results using the same methodology for TES outcomes across all Mathematics subjects are displayed in Table 6.6 below.
Table 6.6: Results of regression analysis for NSW Catholic school mean SIEFA Index of Relative Socio-economic Advantage and Disadvantage by TES mean for mathematics subjects

<table>
<thead>
<tr>
<th>Mathematics subject</th>
<th>Enrolment in NSW Catholic schools</th>
<th>Regression ($R^2$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics General</td>
<td>8,216</td>
<td>0.1999</td>
</tr>
<tr>
<td>Mathematics</td>
<td>4,070</td>
<td>0.0572</td>
</tr>
<tr>
<td>Mathematics Extension 1</td>
<td>1,645</td>
<td>0.032</td>
</tr>
<tr>
<td>Mathematics Extension 2</td>
<td>447</td>
<td>0.0485</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>14,536</strong></td>
<td></td>
</tr>
</tbody>
</table>

(Data sources: Board of Studies NSW student records 2009 and ABS CCD data)

The results of these analyses enable the comparison of the strength of social trend between mathematics subjects. It is clear that the social trend is strongest for students doing Mathematics General. Students from advantaged households doing this subject out-performed students from disadvantaged households by a far greater degree than in any of the more academically challenging subjects. These results when using the school as the point of comparison, along with results of analysis provide above (Table 6.6 and Figure 6.11) show that students from advantaged households were less likely to be doing the lower level Mathematics than students from disadvantaged household yet when they did choose to enrol in this subject their results were likely to be far better. As was the case with the analysis of the HSC English subjects, there was generally a ‘double disadvantage effect’ shown at the school level for students from disadvantaged households, whereby they were more likely to be confined to the lower level Mathematics where they were also more likely to obtain lower results than students from advantaged households. As can be seen on the scatter plots there are always examples of NSW Catholic schools that are able to accommodate students from disadvantaged households to produce better than average results.
As discussed mathematics enrolments in NSW Catholic schools displayed a social trend. Within the Mathematics KLA the subjects aligned along SES lines whereby the easier subjects tended to be populated by a higher proportion of socially disadvantaged students. As the difficulty of the mathematics curriculum increased the enrolment of students from advantaged households also increased. It should also be noted that on average access to the mathematics extension subject provided far stronger TES outcomes as shown above in Figure 6.11.

In summary, compared with all students in NSW, students in NSW Catholic schools were underrepresented in the most academically challenging HSC mathematics subjects. Where students did enrol in these challenging subjects, girls were the minority yet they outperformed the boys. As was the case for English, the analysis of the data shows a concentration of students from lower SES households in the less academically challenging mathematics subjects. Students from higher SES households out performed peers at all levels of mathematics in the School Certificate and the Higher School Certificate with the disparity decreasing as the difficulty of the course increases, potentially due to course pre-selection.
Chapter 7

Science

Fewer students are choosing to study science in the senior school and at university in Australia. This has been the trend in most OECD nations over the past two decades (Ainley et al. 2008). In particular, it appears that there have been declines in the proportion of students studying physics and chemistry (Dobson & Calderon 1999; Harris et al. 2005). Geelan (2009) believes that

“Science in schools has historically tended to privilege science content at the expense of developing students’ understanding of the social relevance of the subject, and school science has also lacked strong links to students’ lived experience.”

(Geelan 2009, p.1)

New South Wales (NSW) has not been immune to declining enrolment nevertheless the decline of the last decade has only been 2.5 per cent of aggregate enrolment\(^\text{69}\) in the three major sciences\(^\text{70}\) in the NSW HSC. Between 1999 and 2008 the number of boys enrolled in the major sciences rose by 2.6 per cent whilst enrolments by girls declined by 7.8 per cent. Figure 7.1 shows NSW science enrolments in 2008 by subject by gender and for the cohort just prior to the introduction of the revised HSC into NSW schools (1999).

\(^{69}\) 2008 had a total student enrolment of 67,931 and 1999’s total enrolment was similar at 66,768. The closeness of the enrolment totals allows comparison between science enrolments by both number and percentage.

\(^{70}\) Physics, Chemistry and Biology were taught in both 1999 and 2008. Geology was last taught in NSW schools in 2000 and since this time it has been taught as a strand in the course, Earth and Environmental Science.
Although the number of students doing science has altered little over time, there has been movement in enrolment between the sciences (refer to Figure 7.1). In this ten year period, Chemistry showed a decline in enrolments by both boys and girls. Boys have enrolled in Biology and Physics in increasing numbers. The enrolments by girls in both Physics and Biology declined over this decade.

In NSW Catholic schools, science subjects were studied by 7,187 students which equates to 43.7 per cent of the cohort in the 2008 Higher School Certificate. Despite all students having experienced the study of science until the School Certificate (Year 10), due to it being compulsory, most students did not choose to study science beyond this level. The decline in enrolments in science subjects by girls (1999-2008) was possibly for reasons similar to those discussed in the previous chapter for the gender disparity in elective mathematics subjects. The 2008 HSC science cohort in NSW Catholic schools consisted of 3,366 girls (39.7% of all girls) and 3,821 boys which equated to 48.0 per cent of all male students. Of all science students, 95.1 per cent of students were eligible for the calculation of the Tertiary Entrance Score (TES). The
TES would seem to be a strong motivator for enrolment in a science subject. Expressed from a student perspective, students are more likely to be enrolling in science in the HSC as a means of progressing to university. Of all the Key Learning Area (KLA) subject groupings, science had the highest percentage of students that were eligible for the calculation of a TES (95.1%) in the 2008 HSC. This high level of eligibility would seem to indicate that non-university aspirants enrolled in HSC study in NSW Catholic schools seem less likely to consider science subjects as part of their HSC study pattern.

Figure 7.2: Proportion of HSC science subject enrolments by School Certificate Science grades (2006) in NSW Catholic schools

Girls entered all 2008 HSC senior science subjects with a stronger science background than did boys if the 2006 School Certificate Science grades are used as the measure. As the perceived difficulty of the subject increased, the proportion of girls enrolled with strong School Certificate Science grades rose in comparison to boys.

(Data sources: Board of Studies NSW student records 2009)

71 The concept of status of science courses will be addressed later in this chapter.
Science students in metropolitan Catholic schools numbered 6,098 or 53.8 per cent of the metropolitan cohort with science students in rural schools numbering 2,722 or 55.27 per cent of all students presenting for the 2008 HSC from rural schools. Although the enrolment percentage of all students enrolled in science was similar, students in metropolitan Catholic schools were more likely to be enrolled in Physics and Chemistry as opposed to Biology and Senior Science. The disparity in enrolment is noteworthy, with students in metropolitan Catholic schools enrolling in the more academically challenging sciences at higher per capita rates than students in rural schools. This may be explained by: SES factors, greater choice in metropolitan Catholic schools, lack of availability of Science teachers in rural Catholic schools, students in rural Catholic schools viewing science subjects as less relevant for their career aspirations, movement of more able rural students to metropolitan boarding schools to access subjects of choice, a combination of these or possibly other reasons. Research into the issue of students in rural Catholic schools enrolling in science subjects at lower rates than students in metropolitan Catholic schools could be beneficial from an equity perspective as there was a higher percentage of students from lower SES households in rural Catholic schools in NSW in the 2008 HSC cohort.

Enrolments by location in science subjects showed variation as illustrated in Figure 7.3 below.

**Figure: 7.3: Enrolment percentage for 2008 HSC science subjects in NSW Catholic schools by location**

(Data sources: Board of Studies NSW student records 2009 and ABS CCD data)

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72 1.1 per cent of students are not recorded as metropolitan or country due to lack of access to accurate information. An example may be that the student address is listed as a post office box in the postal address data field negating accurate geo-coding by residential address.
Figure 7.3 above, shows that 2008 HSC science students in rural Catholic schools, when compared with students in metropolitan Catholic schools, had a preference for the less academically challenging science subjects\(^{73}\).

NSW HSC students can enrol in a number of science subjects concurrently. However, they are limited to six HSC units of science\(^{74}\) in each of the Preliminary (Year 11) and HSC (Year 12) years of study. Multiple science enrolments by individual students along with *Pathways* students results in more science enrolments than individual science students (i.e. many students enrol in more than one science subject concurrently). In 2008, the HSC Catholic schools cohort of 16,447 had 7,187 individual students enrolled in at least one science subject. About one fifth of science students in Catholic schools chose to enrol in more than one science (2 HSC units) subject concurrently, with very few enrolling in the maximum allowable – three subjects. The individual science subject enrolments in Board Developed Courses (BDCs) are shown in Table 7.1.

\(^{73}\) The concept of academic levels of science courses will be explored later in this chapter

\(^{74}\) In the NSW HSC a subject studied for a year is two HSC units and is equal to approximately 120 hours of face to face delivery.
Table 7.1: NSW Catholic School enrolments and gender percentages for 2008 HSC subjects within the Science Key Learning Area

<table>
<thead>
<tr>
<th>Science subject</th>
<th>Girls</th>
<th>Girls%</th>
<th>Boys</th>
<th>Boys%</th>
<th>Total students</th>
<th>All NSW Catholic students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physics</td>
<td>450</td>
<td>5.3%</td>
<td>1410</td>
<td>17.7%</td>
<td>1860</td>
<td>11.3%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>{6.2%}</td>
<td></td>
<td>{21.5%}</td>
<td></td>
<td>{13.5%}</td>
</tr>
<tr>
<td>Chemistry</td>
<td>893</td>
<td>10.5%</td>
<td>1106</td>
<td>13.9%</td>
<td>1999</td>
<td>12.2%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>{13.1%}</td>
<td></td>
<td>{17.4%}</td>
<td></td>
<td>{15.2%}</td>
</tr>
<tr>
<td>Biology</td>
<td>2181</td>
<td>25.7%</td>
<td>1457</td>
<td>18.3%</td>
<td>3638</td>
<td>22.1%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>{27.0%}</td>
<td></td>
<td>{18.2%}</td>
<td></td>
<td>{22.8%}</td>
</tr>
<tr>
<td>Earth and Environmental Science</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>{2.0%}</td>
<td></td>
<td>{1.8%}</td>
<td></td>
<td>{1.9%}</td>
</tr>
<tr>
<td>Senior Science</td>
<td>548</td>
<td>6.5%</td>
<td>875</td>
<td>11.0%</td>
<td>1423</td>
<td>8.7%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>{5.9%}</td>
<td></td>
<td>{7.9%}</td>
<td></td>
<td>{6.9%}</td>
</tr>
<tr>
<td>Science Life Skills #</td>
<td>12</td>
<td>0.1%</td>
<td>6</td>
<td>0.1%</td>
<td>18</td>
<td>0.1%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>{0.5%}</td>
<td></td>
<td>{0.7%}</td>
<td></td>
<td>{0.6%}</td>
</tr>
<tr>
<td>Total</td>
<td>4084</td>
<td></td>
<td>4854</td>
<td></td>
<td>8938</td>
<td></td>
</tr>
</tbody>
</table>

(Data source: Board of Studies NSW student records 2009)

NOTE: “{..}” denotes the state percentage inclusive of all students

# Science Life Skills is only available to students with intellectual support needs. The numbers are very low but included for completeness.

Table 7.1 shows that the total number of boys doing 2008 HSC science in Catholic schools was greater than for girls. Girls were more likely to choose a specialist science (Physics, Chemistry or Biology) whilst boys were more likely to do the lower and generalist level of HSC science (Senior Science) when compared with girls in NSW Catholic schools. This enrolment pattern by gender is apparent when the enrolment data are shown graphically as in Figure 7.4 below.
Variation in enrolment is apparent where individual science subject enrolments as a proportion of all science enrolments in Catholic schools is compared with the science enrolments for the state in the 2008 HSC, (refer to Figure 7.5).
The patterns of enrolments shown in Table 7.1 and Figure 7.5 above indicate a similar enrolment trend to that displayed in comparable analyses of English and Mathematics enrolments in NSW Catholic schools which compared enrolment trends for the state with the Catholic sector. Science students in NSW Catholic schools enrolled in lower ability level subjects at higher percentages when compared with all 2008 HSC students. It is debatable if Biology is less academically challenging than Physics or Chemistry yet this is certainly the case for Senior Science; as will be discussed in more detail later in this chapter. Based on comparison with the State of NSW overall, students in Catholic schools may have been ‘selling themselves short’ by their propensity to enrol in the generalist and lower ability level Senior Science subject. Boys in particular seem to be overly represented in Senior Science compared with all students.

(Data source: Board of Studies NSW student records 2009)
Enrolment patterns by school type for the four major HSC science subjects are shown in Figure 7.6 below. It should be remembered that the majority of single-sex schools in the NSW Catholic sector are congregational (independent) Catholic schools that have an SES demographic above average for the sector.

**Figure: 7.6: Science subject enrolment share of all science enrolments in the 2008 HSC by school type for NSW Catholic schools**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Catholic Girls Schools</th>
<th>Catholic Co-educational Schools</th>
<th>Catholic Boys Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics</td>
<td>14.1%</td>
<td>19.4%</td>
<td>30.2%</td>
</tr>
<tr>
<td>Chemistry</td>
<td>27.0%</td>
<td>20.8%</td>
<td>22.7%</td>
</tr>
<tr>
<td>Biology</td>
<td>52.1%</td>
<td>41.1%</td>
<td>30.4%</td>
</tr>
<tr>
<td>Senior Science</td>
<td>6.8%</td>
<td>18.7%</td>
<td>16.7%</td>
</tr>
</tbody>
</table>

*(Data source: Board of Studies NSW student records 2009)*

**Note:** Percentages in this figure are subject enrolment share and may not total to 100% due to rounding.

As boys dominated enrolment in Physics, it was not surprising that boys-only schools had a higher proportion of students enrolled for this subject. Boys’ schools had lower proportions doing Biology than all other school types and lower proportions doing Chemistry than Catholic girls’ schools in NSW. Girls’ schools showed a higher enrolment proportion for Chemistry and a much higher enrolment proportion for Biology. Given the dominance of girls studying Biology it is noteworthy that girls’ schools had higher a share of enrolments in Chemistry than
boys’ schools. Boys schools and coeducational schools in particular showed an enrolment bias towards Senior Science whilst girls schools showed a leaning towards enrolment in the three specialist science subjects.

Discussion above leads to the question; is there a social or academic hierarchy of subjects within the Science Key Learning Area or even both? One method to explore academic and social hierarchy is to use a scatter plot that brings together average subject TES\(^{75}\) and average SEIFA Index of Relative Socio-economic Advantage and Disadvantage for students enrolled for the individual subjects, refer to Figure 7.7 below.

**Figure: 7.7: Average subject TES by average SEIFA Index of Relative Socio-economic Advantage and Disadvantage for Catholic school students in 2008 HSC science subjects**

![Scatter plot](image)

(Data sources: Board of Studies NSW student records 2009 and ABS CCD data)

This scatter plot shows that there was both an academic and a social (SES) hierarchy for the science subjects delivered in Catholic schools in the 2008 HSC. There was a direct correlation between academic outcome and SES for students in science subjects in the 2008 HSC in NSW Catholic schools; as the subject provided greater reward by way of TES result, there was an increasing enrolment of students from advantaged households. As indicated above, Senior

\(^{75}\) It should be remembered that average subject TES is in itself a measure against other courses as the TES results awarded within a single subject are determined by moderation against all other courses. If we accept TES as a measure of outcomes, it might also be assumed that for some students TES is both a tangible reward and an incentive in the selection and participation in courses.
Science was lowest in the social and academic hierarchy of sciences with Chemistry and Physics at the top of both scales. Given that Biology had the highest enrolment of all science subjects it was not surprising that it was close to the mean point of both academic and SES scales.

Of the girls presenting for the HSC in 2008, 39.7 per cent enrolled in at least one science subject compared with 48 per cent of boys. In single sex boys schools 46.6 per cent of boys attempted at least one science subject in the 2008 HSC whilst in single sex Catholic girls schools 38.3 per cent chose to enrol in a science subject. With the predominance of single sex schools amongst the independent Catholic schools where SES is above average for NSW Catholic schools, it is noteworthy that the difference in enrolment percentage by gender did not differ greatly from that of all Catholic school students.

As discussed in earlier chapters, Tertiary Entrance Score (TES) or University Admissions Index (UAI) as it was called in 2008 can be used as a measure of a students’ overall academic ability. It is obtained by a process of moderation between subjects based on student performance across all subjects. The TES is obtained by aggregating the performance from ten HSC units which for most students will require the results from five HSC subjects. Table 7.2 below, links quartiles of students’ overall academic ability (aggregate TES) with individual science subject enrolment.

### Table 7.2: Science subject enrolments for NSW Catholic schools and percentage in quartiles of aggregate TES performance for the 2008 HSC

<table>
<thead>
<tr>
<th>Science subject</th>
<th>Students eligible for a TES</th>
<th>Lowest TES quartile %</th>
<th>Lower-mid TES quartile %</th>
<th>Upper-mid TES quartile %</th>
<th>Highest TES quartile %</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry</td>
<td>1916</td>
<td>5.7%</td>
<td>16.7%</td>
<td>26.1%</td>
<td>51.5%</td>
<td>100%</td>
</tr>
<tr>
<td>Physics</td>
<td>1776</td>
<td>7.5%</td>
<td>20.7%</td>
<td>28.3%</td>
<td>43.5%</td>
<td>100%</td>
</tr>
<tr>
<td>Biology</td>
<td>3488</td>
<td>18.1%</td>
<td>23.3%</td>
<td>29.0%</td>
<td>27.6%</td>
<td>100%</td>
</tr>
<tr>
<td>Senior Science</td>
<td>1211</td>
<td>44.1%</td>
<td>29.6%</td>
<td>19.3%</td>
<td>7.0%</td>
<td>100%</td>
</tr>
</tbody>
</table>

(Data source: Board of Studies NSW student records 2009)

Note: Enrolment figures shown are for students who are eligible for a TES and are not inclusive of all enrolments. TES aggregate is used in this table rather than individual subject TES as this measure is a better indication of a student’s overall academic ability.

Table 7.2 shows that students capable of studying the ‘more difficult’ sciences were rewarded in the calculation of the TES with 77.6 per cent of students attempting Chemistry in the upper two quartiles of aggregate TES performance. Physics had a similar outcome with 71.8% in the upper
two quartiles of TES performance. Although Biology showed a more even spread across the TES quartiles there still existed a bias towards higher TES outcomes. Senior Science on the other hand showed a complete reversal of the trend shown for the other science subjects. In Senior Science 73.7 per cent of students were found in the lower two quartiles of TES performance. There seems to be a strong link between individual science subject enrolment and overall student ability with more able students tending towards Physics and Chemistry in NSW Catholic schools.

Socio-economic links to science subject enrolment are shown in Figure 7.8 below which brings together individual science subject enrolment percentage with quartiles of SEIFA Index of Relative Socio-economic Advantage and Disadvantage.

Figure 7.8: Enrolments for NSW Catholic schools in the 2008 HSC science subjects by quartiles of SEIFA Index of Relative Socio-economic Advantage and Disadvantage

<table>
<thead>
<tr>
<th>Percentage enrolment</th>
<th>Chemistry</th>
<th>Physics</th>
<th>Biology</th>
<th>Senior Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest SEIFA</td>
<td>30.3%</td>
<td>29.9%</td>
<td>26.0%</td>
<td>23.7%</td>
</tr>
<tr>
<td>Upper Mid SEIFA</td>
<td>24.1%</td>
<td>25.9%</td>
<td>26.4%</td>
<td>24.6%</td>
</tr>
<tr>
<td>Lower Mid SEIFA</td>
<td>24.6%</td>
<td>22.8%</td>
<td>25.5%</td>
<td>23.8%</td>
</tr>
<tr>
<td>Lowest SEIFA</td>
<td>21.9%</td>
<td>21.4%</td>
<td>22.0%</td>
<td>27.9%</td>
</tr>
</tbody>
</table>
As established in earlier chapters, there is a direct link between socio-economic factors and student performance (as measured by TES). Figure 7.8 adds to this discussion by showing that there is also a link between socio-economic factors and enrolment within particular science subjects. As science subjects became less academically challenging, 2008 HSC students from socio-economically disadvantaged households gained greater access. However, if we investigate all science enrolments by student SES background, the spread across the quartiles was very even, refer to Table 7.3 below.

Table 7.3: Catholic school Key Learning Area enrolment quartile percentages for SEIFA Index of Relative Advantage and Disadvantage quartiles

<table>
<thead>
<tr>
<th>KLA</th>
<th>Lowest SEIFA quartile %</th>
<th>Lower-mid SEIFA quartile %</th>
<th>Upper-mid SEIFA quartile %</th>
<th>Highest SEIFA quartile %</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science</td>
<td>25.1%</td>
<td>24.9%</td>
<td>25.0%</td>
<td>25.0%</td>
<td>100%</td>
</tr>
<tr>
<td>English</td>
<td>25.1%</td>
<td>25.1%</td>
<td>25.0%</td>
<td>24.8%</td>
<td>100%</td>
</tr>
<tr>
<td>Mathematics</td>
<td>24.7%</td>
<td>24.9%</td>
<td>24.7%</td>
<td>25.7%</td>
<td>100%</td>
</tr>
</tbody>
</table>

We see that science was evenly spread across the quartiles of SEIFA Index of Relative Socio-economic Advantage and Disadvantage. Science, as a subject area was accessible to all in the 2008 HSC. However, students from advantaged households accessed, in higher proportions, science subjects with greater academic challenge providing greater access to university through TES credit.

To investigate the outcomes for students from differing SES backgrounds that enrolled in academically challenging science subjects, an analysis was undertaken for Chemistry that linked quartiles of SEIFA Index of Relative Socio-economic Advantage and Disadvantage with subject TES quartiles (refer to Figure 7.9 below).
Figure 7.9: Quartile percentages of TES in Chemistry by quartiles of SEIFA Index of Relative Socio-economic Advantage and Disadvantage for the 2008 NSW HSC in Catholic schools

(Data sources: Board of Studies NSW student records 2009 and ABS CCD data)

Figure 7.9 above shows that students in NSW Catholic schools from the quartile of highest household socio-economic advantage outperformed all others by obtaining TES outcomes well above average for students studying Chemistry in the 2008 HSC. Note also that as the TES result increased, the proportion of students from high SES households increased. The reverse was true for students from low SES backgrounds studying Chemistry, with fewer than 17 per cent in the quartile of highest achievement.

Given that students from the quartile of greatest household socio-economic advantage were the minority proportion by enrolment in Senior Science at 23.7 per cent (refer to Figure 7.8) comparable analysis of Senior Science is shown below in Figure 7.10.
Students from high SES households were over represented in the highest quartile of performance with 30.5 per cent in this quartile. Although students from households displaying advantage (as measured by SEIFA) enrolled at lower proportions than other students in Senior Science in the 2008 HSC, greater than 30 per cent were found in the highest quartile of TES performance.

Social trends in NSW Catholic schools were evident in enrolments and performance across all science subjects in the 2008 HSC. To investigate the strength of the trends by subject, regression analysis was conducted at the school level. These analyses plotted average school SES (SEIFA Index of Relative Socio-economic Advantage and Disadvantage) against school average TES for science subjects. The scatter plots are shown below in Figures 7.11 to 7.14.
Figure 7.11: Scatter plots with regression for mean school SEIFA Index of Relative Socio-economic Advantage and Disadvantage by school average subject TES results for NSW 2008 HSC Chemistry

(Data sources: Board of Studies NSW student records 2009 and ABS CCD data)

Figure 7.12: Scatter plots with regression for mean school SEIFA Index of Relative Socio-economic Advantage and Disadvantage by school average subject TES results for NSW 2008 HSC Physics

(Data sources: Board of Studies NSW student records 2009 and ABS CCD data)
Figure 7.13: Scatter plots with regression for mean school SEIFA Index of Relative Socio-economic Advantage and Disadvantage by school average subject TES results for NSW 2008 HSC Biology

(Data sources: Board of Studies NSW student records 2009 and ABS CCD data)

Figure 7.14: Scatter plots with regression for mean school SEIFA Index of Relative Socio-economic Advantage and Disadvantage by school average subject TES results for NSW 2008 HSC Senior Science

(Data sources: Board of Studies NSW student records 2009 and ABS CCD data)
The scatter plots (Figures 7.11 to 7.14) show that for all science subjects, students from higher socio-economic households had more favourable outcomes where performance was measured using subject TES results. Where the proportion of students from lower SES households was highest amongst specialist science subjects (Biology), the disparity in performance between the socially advantaged and disadvantaged was greatest. Almost all NSW Catholic schools offered the three Board Developed specialist 2008 HSC science subjects of Physics, Chemistry and Biology and almost 40 percent of NSW Catholic secondary schools limited their science subject offering to include only the specialist science subjects (i.e. Senior Science is not offered). Senior Science was offered in only 61.5 per cent of Catholic secondary schools. This group of schools had an average SEIFA Index of Relative Socio-economic Advantage and Disadvantage of 1014.3 which was just 3.9 points lower than the average for all Catholic schools at 1018.2.  

Given these data and that students from lower SES households showed a preference for Senior Science it might be viewed as a disappointment that more schools did not offer this subject alongside the three specialist sciences. From this finding it would seem that factors other than student ability and possibly student choice affected which 2008 HSC science subjects were taught in NSW Catholic schools. Given that SES factors influence student progress and academic development prior to entering senior school, limiting choice in senior school science may have been an attempt by schools to encourage (force) higher academic engagement retrospectively. Surely if this were the case, this could be viewed as social selection if only science subjects for the academically strong were considered for delivery.

Table 7.4: Average science subject TES results for all Catholic schools with regression ($R^2$ – strength of social trend) where average school SEIFA Index of Relative Socio-economic Advantage and Disadvantage is mapped by school average subject TES for science subjects in NSW Catholic schools for the 2008 NSW HSC

<table>
<thead>
<tr>
<th>Science subject</th>
<th>Average TES result for all Catholic schools</th>
<th>Average SEIFA Index of Catholic school students</th>
<th>Strength of social trend ($R^2$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry</td>
<td>62.7</td>
<td>1051</td>
<td>$R^2 = 0.0182$ towards High SES</td>
</tr>
<tr>
<td>Physics</td>
<td>59.7</td>
<td>1050</td>
<td>$R^2 = 0.0417$ towards high SES</td>
</tr>
<tr>
<td>Biology</td>
<td>54.9</td>
<td>1045</td>
<td>$R^2 = 0.0607$ towards high SES</td>
</tr>
<tr>
<td>Senior Science</td>
<td>42.2</td>
<td>1033</td>
<td>$R^2 = 0.0430$ towards high SES</td>
</tr>
</tbody>
</table>

(Data sources: Board of Studies NSW student records 2009 and ABS CCD data)

76 Average is for all students and schools included in the in-depth cohort study – 2008 HSC.
Given that students from higher SES backgrounds were more likely to enrol in the more difficult science subjects, it is not surprising that the social trend was stronger as the specialist sciences became less academically challenging as shown in Table 7.4 above. Because 2008 HSC Senior Science was taught in only about 60 per cent of NSW Catholic schools, some social selection may have already occurred, yet social trend towards students from advantaged households was still evident ($R^2 = 0.043$).

Like English and mathematics, 2008 HSC science in Catholic schools showed social patterns where students from higher SES households were more likely to enrol in more academically challenging science subjects and out-performed those from lower SES households in all subjects. Although the specialist science subjects of Physics, Chemistry and Biology were taught in almost all Catholic senior schools only around 60 per cent of schools offered the least academically challenging senior science subject (Senior Science). This pattern would support the statement that HSC specialist science seems to be the domain of the more academically able and potentially less accessible to less academically able students in up to 40% of Catholic schools. The social pattern where household social advantage resulted in greater access to senior curriculum and higher academic performance was consistent for 2008 HSC and 2006 SC science subjects in NSW Catholic schools. Access to the full range of science curriculum is a particular challenge in rural NSW Catholic schools where isolation, lower total enrolments and low SES combine to place seemingly unsurmountable pressure on schools wishing to cater for all senior science subject options.
Chapter 8:

Vocational Education and Training

Introduction

A comprehensive history of Vocational Education and Training (VET) in NSW schools is provided in Chapter 4. This chapter will bring together participation, outcomes and social demographic data for students in Years 10, 11 and 12 in NSW Catholic schools between 1994 and 2010. Analyses of the findings and the trends as contained in these data will be used to draw conclusions as to the ‘place’, the social patterns and success or otherwise from an equity perspective of the introduction and provision of Vocational Education and Training (VET) programs into NSW Catholic schools over this 15 year period. In particular, the chapter will further concentrate on the period 2000 to 2010 as this decade reflects the time following the introduction of the NSW New HSC which was a major reform to senior school curriculum introduced into Year 11 in 2001. This reform brought with it a broad selection of VET subjects as part of the HSC. Although reference will be made to externally delivered VET in Schools (VETiS) programs predominantly by TAFE NSW, the major portion of the research will concentrate on students involved in VET programs delivered within NSW Catholic schools.

In addition to more general social issues, the chapter explores the success or otherwise of the introduction of VET in Schools as a means of addressing inequity, through a concentrated analysis of retention, curriculum availability, achievement, transition and satisfaction. These measures are broadly accepted as appropriate for this purpose as demonstrated by their use by researchers to address similar issues in research conducted by Karmel (2007), Anlezark et al. (2005), Polesel et al. (2005a), Barnet and Ryan (2005), Evans (2005), Polesel et al. (2004) and Teese and Watson (2001). Each of these measures will be qualified, discussed and quantified in relation to VET delivery in NSW Catholic schools prior to drawing conclusions as to their

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77 VET in schools programs as part of the Higher School Certificate (HSC) were first developed and introduced by the NSW Board of Studies (BOS) in 1993.
78 VET programs will be approached as both formal courses and ancillary school activity in the support of student preparation for their school to work transition.
appropriate use as indicators for the success or otherwise of VETiS provision in NSW Catholic schools and in addressing potential inequity in the NSW curriculum.

**Vocational Education and Training in NSW Catholic schools**

Enrolment in VET programs delivered in schools grew rapidly in NSW from their introduction in 1993 until 2002 when growth slowed. The numbers and proportions of student enrolments in VET in NSW Catholic and independent schools when compared with government schools in NSW were lower yet the pattern of enrolment over time was similar for all sectors.

**Figure 8.1: NSW VET in schools enrolments (Years 11 &12) by school sector 1997-2008**

(Data Sources: Evans 2005; DET 2006, 2007, 2008a, 2009; CEC 2008b)

Note: Although data are from different published sources the data are comparative within and across sectors as the original source of the data is common, namely, the July extraction from the NSW Board of Studies enrolment database.

Totals are for enrolments not individual students i.e. where a student does more than one VET subject, each subject enrolment is counted in the Table above. These data are enrolment data (July) and do not align with completion data (December) used in other sections of the chapter.

Key: DET – Department of Education and Training
CEC – Catholic Education Commission
AIS – Association of Independent Schools
In 2008, NSW was slightly below average when it comes to interstate and national comparisons of VETiS participation (refer to Figure 8.2 below).

**Figure 8.2: VET enrolment percentage by school sector and state and nationally in 2008**

![VET enrolment percentage chart](image)

(Data source: ABS 2008)

Over recent years Catholic schools have largely limited VET delivery in schools to curriculum prepared and endorsed by the NSW Board of Studies (BOS). Few NSW schools (in any sector) have ventured away from BOS prepared in-school offerings leaving any additional or alternative programs to externally delivered TVET (TAFE delivered VET). Table 8.1 indicates the extent of the 2010 VET offerings in NSW Catholic schools with 86.9 per cent of VET students enrolled in school delivered VET and a further 13.1 per cent accessing VET programs provided by Registered Training Organisations (RTOs) that were external to the school.
### Table 8.1: 2010 VETiS enrolments in NSW Catholic schools by subject and provider type

<table>
<thead>
<tr>
<th>Subject type/name</th>
<th>School enrolments</th>
<th>TAFE enrolments</th>
<th>Total enrolments</th>
<th>Percentage of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting</td>
<td>0</td>
<td>53</td>
<td>53</td>
<td>0.4%</td>
</tr>
<tr>
<td>Automotive</td>
<td>113</td>
<td>136</td>
<td>249</td>
<td>1.7%</td>
</tr>
<tr>
<td>Business Services</td>
<td>1633</td>
<td>65</td>
<td>1698</td>
<td>11.9%</td>
</tr>
<tr>
<td>Construction</td>
<td>2013</td>
<td>141</td>
<td>2154</td>
<td>15.1%</td>
</tr>
<tr>
<td>Electrotechnology</td>
<td>74</td>
<td>102</td>
<td>176</td>
<td>1.2%</td>
</tr>
<tr>
<td>Entertainment Industry</td>
<td>652</td>
<td>19</td>
<td>671</td>
<td>4.7%</td>
</tr>
<tr>
<td>Hospitality</td>
<td>4721</td>
<td>104</td>
<td>4825</td>
<td>33.9%</td>
</tr>
<tr>
<td>Information Technology</td>
<td>861</td>
<td>75</td>
<td>936</td>
<td>6.6%</td>
</tr>
<tr>
<td>Metal and Engineering</td>
<td>410</td>
<td>25</td>
<td>435</td>
<td>3.1%</td>
</tr>
<tr>
<td>Board Endorsed Subjects</td>
<td>916</td>
<td>926</td>
<td>1842</td>
<td>12.9%</td>
</tr>
<tr>
<td>Primary Industries</td>
<td>237</td>
<td>13</td>
<td>250</td>
<td>1.8%</td>
</tr>
<tr>
<td>Retail Services</td>
<td>726</td>
<td>51</td>
<td>777</td>
<td>5.5%</td>
</tr>
<tr>
<td>Tourism and Events</td>
<td>18</td>
<td>161</td>
<td>179</td>
<td>1.3%</td>
</tr>
</tbody>
</table>

**TOTAL**                  | **12374**         | **1871**        | **14245**        | **100.0%**          |

| Percentage of total        | 86.9%             | 13.1%           | 100.0%           |

*(Data source: Board of Studies NSW student records 2010)*

The high enrolment in Hospitality (33.9%), as was the case in other States of Australia (NCVER 2010), was and remains a feature of VETiS in NSW schools. It may be that there is a limited offering of VET options that might interest girls in particular and therefore many choose Hospitality within a limited selection. The reasons for this high enrolment are likely to be many and interrelated, including such issues as employment prospects, availability of teaching spaces in schools, student experience and subject choices in the compulsory years of schools and many more.
The enrolment pattern of the NSW Catholic sector was similar over time to that of the other school sectors in NSW. For most VET subjects introduced as part of the New HSC in 2000, enrolments increased rapidly between 2000 and 2004 followed by a period of stabilisation with these exemptions: Information Technology has displayed a decline in enrolments since 2003, and Construction and Metal and Engineering have shown steady growth since their introduction (BOS 2008c). These patterns of enrolment may be somewhat reflective of labour market trends (Sweet 2008).

For the 2008 HSC in NSW Catholic schools, enrolment in all elective Key Learning Areas (KLAs) showed gender disparity with VET (all subjects) collectively showing less disparity than most KLAs as Figure 8.3 below shows.

**Figure 8.3: Enrolment percentage by gender for Key Learning Areas in NSW Catholic schools for the 2008 Higher School Certificate**

![Graph showing enrolment percentage by gender for Key Learning Areas in NSW Catholic schools for the 2008 Higher School Certificate](data:image/png;base64,iVBORw0KGgoAAAANSUhEUgAAKIAAAAD2CAYAAAAfWc PremoAAAAAElFTkSuQmCC)

(Data source: Board of Studies NSW student records 2009)

The Industry Curriculum Framework (ICF) VET subjects prepared by the NSW Board of Studies enable students to obtain a VET credential whilst still being considered for university entrance. This factor makes the ICF VET subjects particularly versatile as a curriculum choice.
and they attract the majority of VET enrolments, particularly as part of the HSC program (Year 12). There was notable gender alignment with ICF subjects as can be shown for the 2008 HSC cohort in NSW Catholic schools (Figure 8.4 below).

**Figure 8.4: Enrolments by gender for VET Industry Curriculum Framework subjects in NSW Catholic schools for the 2008 Higher School Certificate**

![Figure 8.4: Enrolments by gender for VET Industry Curriculum Framework subjects in NSW Catholic schools for the 2008 Higher School Certificate](image)

(Data source: Board of Studies NSW student records 2009)

Girls dominated enrolments in Hospitality, Retail and Business Services and shunned enrolment in Information Technology and the trades (Construction and Engineering). This gender pattern is common and the NSW Catholic sector can be counted amongst the many VET providers within Australia and internationally showing such gender patterns (Watt & Eccles 2008).

Vocational Education and Training as part of the Higher School Certificate is relatively new when compared to traditional senior school subjects. Given that the number of subjects and the

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79 This gender pattern is of course displayed in both training and employment situations.
number of students enrolled in VET subject has increased over the past decade (whilst the retention rate has remained relatively static), the consequence has been a relative reduction in enrolment in many traditional (long standing) HSC subjects. Schools have been challenged to adapt to demand through the provision of specialist teachers, workplace access for students, specialist rooms and equipment, the requirements of the Australian VET Qualification Framework and adjustment to school timetables and school culture as regards the place of VET in a Catholic ‘comprehensive’ school environment. The demands (as listed above) have not been consistently addressed throughout the NSW Catholic sector with some schools choosing restricted enrolment and limited implementation of VET programs.

Students in rural and lower socio-economic locations were more likely to enrol in a VET subject as part of their HSC in 2008. Rural NSW in general, tends towards low socio-economic demographics so the bias of rural students might be explained more by socio-economic than geographic influences. Figure 8.5 explores location whilst Figure 8.8 examines the influence of SES on enrolment in VET Industry Curriculum Framework subjects.

(Figure 8.5: Percentage of all students by location enrolled in the 2008 HSC (Year 12) Industry Curriculum Framework VET subjects)

(Data sources: Board of Studies NSW student records 2009 and ABS CCD data)

80 It is acknowledged that schools must make choices and choices should be based on equity principals in Catholic schools. This being said, NSW Catholic school principals might benefit from an exercise of clarifying and validating the equity principles upon which senior curriculum provision are based.
As shown in Figure 8.5, the country student enrolment percentage was higher in all HSC VET subjects other than Business Services and Entertainment Industries. The difference across all VET engagement is notable where in NSW country Catholic schools 35.7 per cent of students enrolled in at least one VET subject compared with metropolitan Catholic schools with a VET enrolment percentage of 27.8. When analysing the gender variation within ICF VET subjects and school location the variation between metropolitan and country schools was inconsistent.

Figure 8.6: Percentage share of girls enrolled in Industry Curriculum Framework VET subjects in the 2007 Preliminary year by location for NSW Catholic schools

(Data sources: Board of Studies NSW student records 2009 and ABS CCD data)
Figure 8.7: Percentage share of boys enrolled in Industry Curriculum Framework VET subjects in the 2007 Preliminary year by location for NSW Catholic schools

(Data sources: Board of Studies NSW student records 2009 and ABS CCD data)

Figure 8.8: Percentage share of country students enrolled in Industry Curriculum Framework VET subjects in the 2007 Preliminary year by gender

(Data sources: Board of Studies NSW student records 2009 and ABS CCD data)
In reference to Figures 8.6 to 8.9 above, Retail Operations and Entertainment Industries showed significant gender variation in enrolment by location compared with all other 2008 HSC Industry Curriculum Framework VET subject enrolments in NSW Catholic schools. Given that a higher proportion of country students were attracted to school delivered VET subjects, girls in the 2007 Preliminary year in NSW Catholic country schools seemed to have fewer ‘attractive VET’ options compared with their male peers. Country girls proportionally outnumbered boys in Retail Operations compared with the gender percentage for this subject delivered in metropolitan Catholic schools. Male dominated VET subjects (Construction, Engineering and Information Technology) displayed a similar gender breakdown in country and metropolitan Catholic schools. However this was not so for female dominated subjects where country girls were a higher proportion of enrolment compared to girls in metropolitan Catholic schools and particularly so for Retail Operations where the disparity was significant. Enrolments in Entertainment Industry showed the opposite trend where girls in the country enrolled at a lower proportion by gender than did metropolitan girls.

Students in NSW rural Catholic schools have less access to VET offered by providers outside the school than do metropolitan students. This is due to a lack of VET providers (including TAFE) and where providers are available there is generally a limited range of subjects on offer in smaller country centres. Given these limitations, a higher proportion of students in NSW rural
Catholic schools than metropolitan Catholic schools still access externally provided VET whilst at school. As households in rural NSW are more likely to be in the lower two quartiles of SES, this disjuncture could be seen to be adding to the disadvantage that already exists for students in rural NSW.

By using the SEIFA Index of Relative Socio-economic Advantage and Disadvantage, the social patterns for VET students in NSW Catholic schools can be investigated. Figure 8.8 below uses SEIFA quartiles of all Year 12 VET Catholic school students to display the relationship between SES and VET enrolment.

**Figure 8.10: Quartiles of SEIFA Index of Relative Socio-economic Advantage and Disadvantage for the 2008 HSC cohort in NSW Catholic schools by enrolment in Industry Curriculum Framework (ICF) VET subjects**

(Data sources: Board of Studies NSW student records 2009 and ABS CCD data)

Almost 60 per cent of students enrolled in ICF VET subjects were from households in the lower two quartiles of the SEIFA measure and the pattern across the various ICF VET subjects showed considerable variation. Primary Industries and Metal and Engineering had around 80

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81 Of VET enrolments in rural Catholic schools 14.4 per cent were at a TAFE college compared with 12.3 per cent in metropolitan Catholic schools in 2010.
per cent of enrolment from the lower two quartiles whilst the majority have between 55 and 65 per cent. Entertainment Industry ICF was the clear exception with fewer than 40 per cent of enrolment in the lower two quartiles. On average only 16.7 per cent of students in the highest SEIFA quartile chose to enrol in an ICF VET subject as part of their HSC. Entertainment ICF was the only VET subject where the enrolment percentage of the highest SEIFA quartile was above population proportion (26.9%) for the 2008 HSC cohort in NSW Catholic schools. Although it would be an overstatement to say that ICF VET in Year 12 in NSW Catholic schools is a domain of the poor there is evidence of social bias towards enrolment in VET by students from disadvantaged households.

To explore possible variation of the socio-economic status (SEIFA Index of Relative Socio-economic Advantage and Disadvantage) of VET students within subjects as a consequence of gender, a similar analysis to that shown in Figure 8.8 above was conducted for gender (multivariate and frequency analysis). The variation within quartiles of SEIFA Index by gender was not significant except where the enrolment of one gender was particularly low. These aberrations were dismissed as statistical error resulting from small samples. Therefore it is possible to say that gender is unlikely to be an influence on the relationship between lower socio-economic status and VET subject enrolments in NSW Catholic schools.

**Equity measures for VET in schools**

School systems across Australia have increased the provision of VET in Schools (VETiS) over the past decade (NCVER 2010). This trend has been driven by government policy at both levels of government, state and commonwealth. It is common for schools and school authorities to publicly declare that they are catering for the less academically able through increased VET provision, but is this factual, ethical and socially acceptable? On occasion, it might be reasonable to interpret the reference to “the less academically able” as ‘those with limited or no alternative options’, especially when this group coexists with those with many options, or ‘those predominantly from low socio-economic circumstance’ or ‘the poor’. If these interpretations were to be considered accurate; the ambition to increase VETiS enrolment could be viewed as tokenism, where it is acceptable to accommodate ‘the poor’ with what might be viewed by some as ‘second best’. This approach may display public acceptance of the fact that the compulsory years of schooling have failed to deliver sound educational outcomes for those with greatest need. The ‘able’ may be such because the ‘poor’ are accommodated by a curriculum and schooling structure that contributes to them being less able and poor.
To explore these issues, this chapter will investigate outcome measures through a lens of social variables and in particular socio-economic advantage and disadvantage. By an analysis of VET within variables such as retention, curriculum availability and access, achievement, transition and satisfaction, social patterns and the effects of social variables can be used to support or challenge the contemporary place of VET in Australian schools. Although the NSW Catholic schools sector does not exactly mirror the demographics of all Australian schools, due to its size and diversity, a study of these issues within this system will be a valuable insight into the national debate.

**Retention and VET in NSW Catholic schools**

Given the general discussion of retention in Chapter 4, it should be noted that apparent retention (Years 10 to 12) has been relatively static for the past decade with a significant increase (10%) in the 1990s. It should also be remembered that VET was introduced in NSW schools in a limited capacity in 1993 with a much broader implementation in 2000. An uninformed observation could deduce that after an initial impact VET has had no influence on the retention of students for senior school enrolment. Unlike other states in Australia, NSW does not conduct state-wide high quality satisfaction and destination studies. Such data are needed to truly ascertain the reasons for staying on and for the measurement of direct benefits to students. Research conducted for the NSW government school sector showed a connection between VET provision and staying-on at school. These findings are also likely to be valid for the NSW Catholic schools.

“The majority of HSC VET graduates (in government schools) indicated that VET played a role in keeping them at school, this view was strongest among students with the lowest level of prior academic achievement and stronger for males than females. These findings endorse the value of VET in schools programs in contributing to the retention of students to Year 12, including those at risk of early leaving.”

(Polesel et al. 2005, p.7)

The increased retention of students from lower SES backgrounds has occurred in a period where research would suggest that with the introduction of VET into schools that these students were more likely to stay at school (Teese & Polesel 2003; Teese et al. 2003). As more students from low SES families stay at school, it would seem that they are more likely to be catered for within the public sector (Lamb et al. 2000). As indicted above, the number and proportion of students
enrolled in VET is greater in government schools and this may be attributable to the fact that greater portions of the student population in government schools are from lower SES households.

In addition to social issues, HSC, school, and curriculum structures in NSW schools seem to ‘ensure’ that Vocational Education and Training is most popular with students from low SES family backgrounds. This is common across the nation (Preston 2007) nevertheless NSW Catholic schools may need to be aware that students from low income families might be a decreasing proportion of their enrolments (Bishops of NSW and the ACT 2007). If this trend continues, it may become more difficult to offer VET due to uneconomically small class sizes and this may perpetuate the drift of such students towards schools that can better cater for their needs, further affecting retention of students in Catholic schools and in particular, those from low SES families (Lamb 1997).

Comparison of SES and student enrolments by sector, in 2006, showed that children from low income Catholic families attending secondary schools were twice as likely to attend a government school than a Catholic school (NCEC 2004; Bishops of NSW and the ACT 2007). School tuition fees would certainly be a factor when parents in low SES circumstance are deciding on which school their children will attend, nevertheless, ease of access to appropriate curriculum (VETiS) may also be a factor. Given the link between low SES circumstance and the more likely involvement in VET, delivery is more likely to be most economic within the government sector due the higher percentage of involvement producing economies of scale (Lamb & Ball 1999; Lamb et al. 2000). Ease of delivery within government schools (due to strong links with TAFE) may also result in an economic access to a broader range of VET programs applying further pressure to the scenario under discussion above.

A significant finding from research in 2005 was that more than six in ten of VET students completing the HSC in 2004 indicated that doing an HSC VET subject “influenced their decision to stay on at school until Year 12” (Evans 2005, p.4). This ratio seems to be directly disproportional to the ability level of the child (based on Year 10 performance); as ability level drops students are more likely to be influenced to stay at school to access VET programs; with up to 75% of lower achieving boys indicating this to be the case (Evans 2005; Polesel et al. 2005). Evans (2005) concludes that VET in NSW schools improves retention (by an undeterminable percentage) but possibly more importantly, it provides engagement for those that do choose to stay on at school. This is particularly so for those with a preference for applied

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82 Polesel et al. (2005b) indicate a 4% variance in this factor in relation to undertaking senior school study between low and high SES.
learning and those with lower academic ability. This outcome and the links to retention as discussed were further validated for students in NSW in the Career Moves study (Walstab et al. 2007).

In summary, although total apparent retention in NSW Catholic schools displayed a slight decline to 2008 with a rebound in response to the 2008 Global Financial Crisis, it would seem that the decline to 2008 would have been greater other than for the increase in provision of VET in Catholic schools. By this measure, therefore, it could be said, that the provision of VET in NSW Catholic schools helps to address potential inequity in retention.

**VET curriculum access**

As never before, school principals are becoming business managers (Gillard 2012). They are required not only to be outstanding educators but must be able to manage large and complex budgets (particularly in non-government schools), industrial relations issues as well as an increasing plethora of accountability placed on them by a growing raft of legislation at both state and national levels (Mulford et al. 2001; Bristow et al. 2007). The responsibility of accountability has placed increasing pressure on every Australian school with the introduction of the MySchool website. With the public disclosure of school financial details on MySchool, school principals are under extreme pressure to keep tuition fees as low as possible by ensuring appropriate, yet economic, class sizes. Many school principals are torn as the business management requirements of their role place greater pressure on educational principles. Student to teacher ratios in the NSW Catholic sector are the highest of the three school sectors in NSW83 making it even harder for Catholic school principals to address the directive of the Bishops for accessibility to students from low SES households, due to economic constraints (Bishops of NSW and the ACT, 2007).

As discussed, VET in schools is seen by many as a means to address inequity of provision in Australian schools.

“This study demonstrates that VET in schools ... helps to cater for the different learning needs and educational and career aspirations for the diverse range of students now graduating from NSW schools.”

(Polesel et al. 2005, p.xiii)

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83 In 2009 the average secondary student / teacher ratio (all students / all teachers) for NSW Catholic secondary schools was 13.4 : 1. (CEC 2010)
For this to be true, VET has to be widely and freely available to all (Teese & Polesel 2003). There is a temptation to align VET with low academic performance and possibly low SES communities where a stronger demand might be expected and on average would be realised. However, to do so by lessening access to the more traditional academic curriculum could be viewed as academic ‘de-selection’ and unacceptable as a policy direction or structural position (Ryan 2002) especially if it is accepted that appropriate curriculum (inclusive of VET) is a strong lever for student retention (Lamb et al. 2004a).

Open and appropriate access to VET programs beyond the compulsory years of schooling enables access to a broader range of students and for some it enables re-engagement with schooling (Evans 2005). This engagement may be more than a reconnection with schooling but may include engagement with non-VET curriculum offerings as well. Many studies report that VET is the ‘hook’ for retention and engagement beyond the VET itself (Laughlin 2008, Barnett & Ryan 2005; Evans 2005). It is evident that where students are well supported within a VET program, that they are able to extend their interest and motivation beyond the VET delivery to maximise benefit delivered through non-VET curriculum. These ‘secondary’ outcomes are more likely where VET is delivered within the school and where it is delivered without additional cost or penalty to the students or their family (Teese & Polesel 2003).

“The research literature on completing school and on differential achievement both suggest that curriculum has an important role to play in engaging young people in education, particularly through:

- greater breadth of curriculum choice,
- a more appropriate instructional environment for the curriculum, and
- better cooperation between school and other educational agencies to provide alternatives to young people.”

(Lamb et al. 2004a, p.48)

Given strong evidence of the benefits and outcomes of VET in the senior curriculum, ‘ease of access to VET’ should be an aim of contemporary Australian schools. Although VET is a relatively new post-compulsory option, it may have moved to a position of being considered to be an ‘essential’ curriculum offering and as such should be advanced into the ‘mainstream’ where possible. Yet VET in Australian schools struggles for parity with the traditional curriculum (Polesel 2010). School timetables in many (if not most) NSW schools (including Catholic schools) continue to marginalise VET by limiting delivery within timetables designed for access to ‘academic’ (traditional) programs of study. It is not appropriate for students engaging in VET programs to be put in a position of ‘catch-up’ by being forced to forego access
to other components of their study program to engage in VET (classes or workplace learning) (Barnett & Ryan 2005). Evans (2005) reports that this issue was of great concern to students consulted as part of his study. It would seem from this study that many schools are expecting students to access VET programs as ‘additional’ where students feel penalised if they choose to study VET programs alongside traditional subjects (Evans 2005). There is no evidence that the finding of Evans in 2005 has been addressed by NSW schools. It is acknowledged that other curriculum areas or subjects other than VET may also be viewed as ‘additional’ within schools, through most often this is a result of small candidature, specialisation and economic factors.

The manner in which engagement with VETiS programs are funded in NSW schools would also seem to be a factor influencing student access. Although the school sectors have different means of funding VET it would seem that none have ‘got it right’ (Evans 2005). A funding model that supports equity of access to VET delivered in the school and by external providers (TAFE etc.) is needed to ensure that VET can be offered on its merits alongside traditional programs of study (Polesel et al. 2004; Keating 2008a).

Although the NSW curriculum may have freed itself somewhat from university influence over recent decades, the manner in which the curriculum is packaged, delivered, assessed and reported may still be overly ‘controlled’ by university entry and preparation requirements. Many see VET programs as providing space in the curriculum for the applied learner (both academic and non-academic) (Teese & Polesel 2003). Given contemporary Australian social patterns, applied learners are more likely to be from the lower SES families and are less likely by their approach to learning to be interested in more abstract academic pursuits (Lamb et al. 2004a). Many Catholic schools attracting students with such interests are torn by conflicting forces of curriculum offering. On the one hand there are the pressures of a ‘university-oriented’ curriculum and of parents wanting opportunity for their children that many themselves did not have.84 On the other hand there is the realistic preparation of students for the best possible transition from school (Crump & Stanley 2005).

The total number of individual students enrolled in one or more VET subjects in NSW Catholic schools peaked in 2002 when there were 9,432 VET students in Stage 6 (Years 11 and 12). As Figure 8.10 below shows total student enrolment numbers continued to increase85 after this time whilst the number of students doing VET remained relatively static.

84 Socio-economic status and cultural background of the parents are significant factors affecting the advice and ‘pressure’ experienced by the young person. Students from non-English speaking backgrounds are under greater parental pressure to enrol in university pathways (Anelzark et al. 2006).

85 This increase was largely due to a total student population increase over this period as opposed to improved retention.
The peak in individual VET student numbers in NSW Catholic schools in 2002 aligns with the peak of the apparent retention percentage (Years 10 to 12) as shown in Table 4.1 in Chapter 4. Figure 8.12 below brings these data together to show the alignment.
It would seem that the introduction of enhanced VET options in 2000 as part of the *New HSC* in NSW may have helped to increase retention from Years 10 to 12 with apparent retention increasing by over 1 per cent. The *New HSC* introduced a broader range of VET offerings (industry areas) and enabled more VET subjects to count towards university entry by way of an optional HSC exam. As many changes across the curriculum occurred with the introduction of the *New HSC*, the real effect of VET as part of the *New HSC* on student participation is speculative. Additional VET programs by way of Industry Curriculum Framework subjects have been introduced over time (refer to Table 8.2 below) yet both retention and the student percentage of VET participation have fallen slightly. The VET participation percentage increase in 2008 may have been as a consequence of the introduction of two new Industry Curriculum Framework subjects, namely: Automotive and Electrotechnology. Enrolment in both subjects was male dominated. It is important to note that the total retention percentage continued to fall at the same rate from 2005 to 2008, suggesting that VET enrolments in the newly introduced subjects may have been drawn from more traditional HSC subjects and not necessarily encouraging additional students to remain at school.
Table 8.2: Year of introduction and updating of Industry Curriculum Framework VET subjects as part of the NSW HSC

<table>
<thead>
<tr>
<th>Industry Curriculum Framework</th>
<th>First year of implementation</th>
<th>Comments</th>
</tr>
</thead>
</table>
| Automotive                    | 2008                        | • approved September 2007  
                                    |                | • prior to Framework VET BECs |
| Business Services             | 2000                        | • major revision approved August 2008 [Business Services]  
                                    |                | • major revision approved November 2001 [Business Services]  
                                    |                | • approved June 1999 [Business Services (Administration)] |
| Construction                  | 2000                        | • major revision approved September 2009  
                                    |                | • major revision September 2004  
                                    |                | • approved June 1999 |
| Electrotechnology             | 2008                        | • minor update approved September 2008  
                                    |                | • approved September 2007  
                                    |                | • prior to Framework VET BECs |
| Entertainment Industry        | 2003                        | • minor update approved May 2009  
                                    |                | • major revision approved August 2004  
                                    |                | • approved July 2002  
                                    |                | • prior to Framework VET BEC |
| Financial Services            | new - anticipated 2012      | • in consultation 6 June – 1 July 2011  
                                    |                | • prior to Framework VET BEC |
| Hospitality                   | 2000                        | • major revision approved October 2008 [Hospitality]  
                                    | (1993)         | • major revision approved November 2002 [Hospitality]  
                                    |                | • approved June 1999 [Tourism and Hospitality]  
                                    |                | • Industry Studies – Hospitality 1993 |
| Human Services                | 2011                        | • approved September 2010  
                                    |                | • prior to Framework VET BECs |
| Information Technology        | 2000                        | • minor update approved September 2009  
                                    |                | • major revision approved April 2006  
                                    |                | • minor update approved November 2002  
                                    |                | • approved June 1999 |
| Metal and Engineering         | 2000                        | • major revision approved June 2006  
                                    | (1993)         | • approved June 1999  
                                    |                | • Industry Studies – Metal and Engineering 1993 |
| Primary Industries            | 2000                        | • major revision – in consultation 6 June – 1 July 2011 – anticipated 2012  
                                    |                | • major revision approved October 2003  
                                    |                | • approved June 1999 |
| Retail Services               | 2000                        | • major revision approved October 2007 [Retail Services]  
                                    | (1993)         | • minor update approved November 2002 [Retail]  
                                    |                | • approved June 1999 [Retail]  
                                    |                | • Industry Studies – Retail 1993 |
| Tourism and Events            | 2000                        | • major revision approved October 2008  
                                    |                | • major revision approved November 2002 [Tourism]  
                                    |                | • approved June 1999 [Tourism and Hospitality] |

(Information provided upon request by the NSW BOS June 2011)
Over the period 2002 to 2008 in NSW Catholic schools, the number of individual Stage 6 VET students dropped slightly, still the number of VET enrolments increased. More students were choosing to enrol in more than one VET subject as part of their HSC. Over the same period, the total number of Stage 6 students in NSW Catholic schools increased whilst the retention percentage dropped, i.e. although an increasing number of students were enrolled in Catholic schools, a lower percentage were remaining to complete Year 12 within the Catholic system. As these trends occurred concurrently, it might indicate that, with the introduction of more VET options that students were attracted to them from what might be termed ‘the existing pool of retained students’. However given the findings of Evans (2005) that 60 per cent of NSW Stage 6 VET students indicated that access to VET was a factor in them staying on at school beyond Year 10, it can be accepted that the retention percentage would have been lower if not for a suitable range of VET offerings as part of the NSW Stage 6 curriculum.

Provision of an appropriate breadth of curriculum choice (including VET) is especially problematic for small Catholic schools located in rural NSW. Of the 45 country Catholic secondary schools, 49 per cent had fewer than 100 students in Year 12 in 2008 and a further 24 per cent had between 100 and 120 students (BOS 2008c). The proportion of students within these schools engaging in VET programs was higher than in metropolitan Catholic schools and the range of VET programs provided by rural schools was greater; on average country Catholic schools offered 4.02 VET programs compared with metropolitan Catholic Schools with 3.58 subjects (BOS 2008c). The national VETiS engagement percentage for students in metropolitan schools was 24.5 per cent whilst it was 28.9 per cent for non-metropolitan schools, further emphasising the importance of a broad VET subject selection for students in country schools (Johns et al. 2004; Anlezark et al. 2006). Based on Year 11 VET enrolments, the difference in VET enrolment percentage between metropolitan and rural Catholic schools increased from 2004 to 2008 after a consistent variance from 2000 to 2004 (refer to Figure 8.13). The 2008 Year 11 enrolment in VET for students in country Catholic schools was 38.37 per cent and for metropolitan schools, 27.75 per cent (BOS 2008c). The difference between rural and metropolitan Catholic schools was less marked for Year 12 students enrolled in a VET subject with the difference being about 5 per cent greater in rural Catholic schools.
Figure 8.13: Catholic school VET students as a percentage of all students from 2000 to 2008 by study year and location

Although the Stage 6 VET curriculum enables access beyond introductory levels of engagement, few students in Catholic schools access levels beyond ‘pre-employment qualifications’ at Certificates I and II. Table 8.3 below, shows that in all but one subject, students enrolled for greater than the minimum for HSC recognition were fewer than 2 per cent of enrolments in 2008. Reasons for this are numerous nevertheless some of the most significant are: the restrictions imposed by the ‘HSC breadth of study’ requirements, difficulty in timetabling more than 240 hours per course (over Years 11 and 12), lack of trained teachers at the higher Certificate levels (Certificate III), limited access to VET programs in Years 9 and 10, and the teacher registration requirements of the NSW Institute of Teachers. As there are examples of students in Catholic schools accessing Certificate III outcomes and engaged in school-based apprenticeships, it would seem that these barriers are not insurmountable. However, they may remain limited in their implementation if NSW Catholic schools allow themselves to be restricted within current structures and constraints. The appropriate provision of VET to students in the final two years of compulsory schooling (Stage 5, Years 9 and 10 in 2008) may also help to address early leaving. Up to 15 per cent of early school-leavers said their main reason for leaving early was to access training or study not available at their school (Lamb et al. 2000).
Table 8.3: Percentage of students within 2008 HSC Board Developed VET subjects (VET Industry Curriculum Frameworks) with greater than 120 hours of enrolment

<table>
<thead>
<tr>
<th>VET subject (Industry Curriculum Frameworks)</th>
<th>Enrolment</th>
<th>Students enrolled in greater than 120 HSC hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percentage</td>
</tr>
<tr>
<td>Hospitality</td>
<td>1813</td>
<td>33</td>
</tr>
<tr>
<td>Construction</td>
<td>766</td>
<td>4</td>
</tr>
<tr>
<td>Retail Operations*</td>
<td>462</td>
<td>62</td>
</tr>
<tr>
<td>Business Services</td>
<td>766</td>
<td>3</td>
</tr>
<tr>
<td>Primary Industries</td>
<td>90</td>
<td>0</td>
</tr>
<tr>
<td>Information Technology</td>
<td>473</td>
<td>7</td>
</tr>
<tr>
<td>Metal &amp; Engineering</td>
<td>181</td>
<td>3</td>
</tr>
<tr>
<td>Entertainment Industry</td>
<td>233</td>
<td>0</td>
</tr>
<tr>
<td>All VET (ICFs)</td>
<td>4784</td>
<td>112</td>
</tr>
</tbody>
</table>

(Data source: Board of Studies NSW student records 2009)

NOTE: * Students enrolled in Retail and also employed in part-time retail jobs were able to achieve access to some additional units of competency through recognition of part-time employment. There is a process whereby on-job unit achievement can receive recognition for HSC hours.

As Lamb et al. (2004) highlight, cooperation within local educational communities may economically offer greater opportunity for students. Lack of will by schools to work together and to cooperate across sectors as well as the continued competition between the school and TAFE sectors (Polesel et al. 2004) may be restricting access to VET for NSW students. Although students in NSW Catholic schools may have reasonable opportunities to access TAFE-delivered VET (TVET) at the higher levels 86 (access beyond Certificate II), many Catholic school principals and administrators do not see the widespread use of this mode of access as economically feasible due to the course fees charged by TAFE NSW. The 2010 VET enrolments for NSW Catholic school students by provider type and location are provided below in Table 8.4 and 8.5. 87

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86 Access is more freely available in metropolitan locations where there are more TAFE colleges and a broader range of courses offered.
87 These data are included as a full historical record to support readers wishing to analyse and compare the scope and range of VET participation in NSW Catholic schools.
Table 8.4: 2010 VET enrolments for NSW metropolitan Catholic schools by provider

<table>
<thead>
<tr>
<th>Subject type</th>
<th>All VET enrolments METROPOLITAN</th>
<th>School VET enrolments METROPOLITAN</th>
<th>Non-school VET enrolments (TAFE) METROPOLITAN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Total</td>
</tr>
<tr>
<td>Accounting</td>
<td>28</td>
<td>17</td>
<td>45</td>
</tr>
<tr>
<td>Automotive</td>
<td>94</td>
<td>7</td>
<td>101</td>
</tr>
<tr>
<td>Business Services</td>
<td>341</td>
<td>970</td>
<td>1311</td>
</tr>
<tr>
<td>Construction</td>
<td>1290</td>
<td>11</td>
<td>1301</td>
</tr>
<tr>
<td>Electro-technology</td>
<td>71</td>
<td>0</td>
<td>71</td>
</tr>
<tr>
<td>Entertainment Industry</td>
<td>246</td>
<td>256</td>
<td>502</td>
</tr>
<tr>
<td>Hospitality</td>
<td>1149</td>
<td>1850</td>
<td>2999</td>
</tr>
<tr>
<td>Information Technology</td>
<td>548</td>
<td>97</td>
<td>645</td>
</tr>
<tr>
<td>Metal and Engineering</td>
<td>75</td>
<td>0</td>
<td>75</td>
</tr>
<tr>
<td>Board Endorsed Courses</td>
<td>410</td>
<td>559</td>
<td>969</td>
</tr>
<tr>
<td>Primary Industries</td>
<td>74</td>
<td>10</td>
<td>84</td>
</tr>
<tr>
<td>Retail Services</td>
<td>162</td>
<td>317</td>
<td>479</td>
</tr>
<tr>
<td>Tourism and Events</td>
<td>9</td>
<td>72</td>
<td>81</td>
</tr>
<tr>
<td>TOTAL</td>
<td>4497</td>
<td>4166</td>
<td>8663</td>
</tr>
</tbody>
</table>

(Data sources: Board of Studies NSW student records 2010)
Table 8.5: 2010 VET enrolments for NSW rural Catholic schools by provider

<table>
<thead>
<tr>
<th>Subject type</th>
<th>All VET enrolments</th>
<th>School VET enrolments</th>
<th>Non-School VET enrolments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RURAL</td>
<td>RURAL</td>
<td>(TAFE) RURAL</td>
</tr>
<tr>
<td>Name</td>
<td>Male</td>
<td>Female</td>
<td>Total</td>
</tr>
<tr>
<td>Accounting</td>
<td>5</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Automotive</td>
<td>136</td>
<td>12</td>
<td>148</td>
</tr>
<tr>
<td>Business Services</td>
<td>48</td>
<td>339</td>
<td>387</td>
</tr>
<tr>
<td>Construction</td>
<td>838</td>
<td>15</td>
<td>853</td>
</tr>
<tr>
<td>Electro-technology</td>
<td>101</td>
<td>4</td>
<td>105</td>
</tr>
<tr>
<td>Entertainment</td>
<td>94</td>
<td>75</td>
<td>169</td>
</tr>
<tr>
<td>Hospitality</td>
<td>593</td>
<td>1233</td>
<td>1826</td>
</tr>
<tr>
<td>Information Technology</td>
<td>235</td>
<td>56</td>
<td>291</td>
</tr>
<tr>
<td>Metal and Engineering</td>
<td>353</td>
<td>7</td>
<td>360</td>
</tr>
<tr>
<td>Board Endorsed Courses</td>
<td>363</td>
<td>510</td>
<td>873</td>
</tr>
<tr>
<td>Primary Industries</td>
<td>97</td>
<td>69</td>
<td>166</td>
</tr>
<tr>
<td>Retail Services</td>
<td>75</td>
<td>223</td>
<td>298</td>
</tr>
<tr>
<td>Tourism and Events</td>
<td>10</td>
<td>88</td>
<td>98</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>2948</td>
<td>2634</td>
<td>5582</td>
</tr>
</tbody>
</table>

(Data sources: Board of Studies NSW student records 2010)

Another significant area where cooperation is necessary to ensure that school-delivered VET programs are valued by students and their parents is the recognition of school delivered VET by the granting of ‘credit’ by post-school providers. Although Evans (2005) reports a high award rate (76%) for students asking for credit recognition, the number of students being assessed for credit transfer arrangements is as low as 38 per cent for students continuing in the same Training Package after leaving school and as low as 28.2 per cent for all school-delivered VETiS qualifications (Polesel et al. 2005). The schooling sector must continue to ensure credit transfer opportunities for their students by informing students prior to graduation and by
insisting on appropriate post-school enrolment procedures that ensure proper credit transfer arrangements.

Access to VET curriculum, and in particular at higher levels, may also be limited as a consequence of the commonly held view that NSW Catholic high schools must be comprehensive high schools. This thesis takes the position that the principles of open access to curriculum and pathways are what should determine school and system structure. It is certainly not within the contemporary Catholic education philosophy to ‘stream’ (track) students based on performance. This thesis supports the understanding - that students are not being ‘streamed’ if they freely choose ‘restrictive pathways’ (mostly vocational) based on accurate information and with counselling support. If schools force students into such pathways by the way they offer study programs, by biased counselling or based on performance, this would be ‘streaming’ and clearly outside the philosophy of Catholic education. When referring to career development services in Australian schools Halliday-Wynes et al. (2008) make the comment:

“... vocational education and training (VET) has a poor image and the focus remains on pathways to university rather than on opportunities for pursuing apprenticeships or courses in technical and further education (TAFE) institutes”

(Halliday-Wynes et al. 2008, p.1)

It seems from the data that many NSW Catholic schools may be inadvertently ‘streaming’ the bulk of their students into the university pathway with fewer than 35 per cent actually realising this outcome in the year following the HSC (Evans 2005). Catholic schools may need to approach curriculum provision from a more contemporary premise; one based on an awareness of the knowledge economy, mobility of the workforce, skills shortages, employment opportunity and the fact that most students currently in schools will engage in many different employment experiences within their working life. This process would not be particular to Catholic schools in NSW but would reflect contemporary practice in many developed nations (Keating 2008b). Rothman et al. (2008) and Helme & Polesel (2004) suggest that there is a university-centric vocational counselling approach nationally and this is reflected in the career support offered by schools generally. It may be that by being almost exclusively committed to ‘comprehensive’ schools, Catholic schools in NSW are blocking options for students who would freely choose alternatives if they were to be accessible to them without ‘penalty’.

The introduction of commonwealth government initiatives such the Australian Technical Colleges and the Trade Training Centres has encouraged the NSW Catholic schools sector to rethink their long-standing commitment to systems and structures exclusively designed to deliver a comprehensive curriculum in each senior secondary school. The funding available
from government has recently supported the establishment of a metropolitan vocational college where structures are specifically designed to provide vocational and employment outcomes in contrast to university access opportunities. One regional Catholic parish has supported a vocational college for nearly 30 years. Although it was generally agreed that this college provided valuable outcomes for its students, it existed more as an aberration in the system rather than as a model for others to follow. This senior student college, by its exclusive focus on vocational pathways, was not only unique in the Catholic sector but in NSW. Both colleges work closely with industry partners and employers to the advantage of both partners and students. With the success of these colleges, it is likely that more similar colleges will be established in the future, particularly in more densely populated locations.

The mandatory requirement of the NSW Board of Studies for all students enrolled in VET curriculum\textsuperscript{88} to participate in a work placement has the strong endorsement of industry (PhillipsKPA 2005). This requirement is reflective of an acceptance of the Australian Quality Training Framework approach in NSW despite the impost that such a requirement places on schools and the students themselves. The benefits reported by Evans (2005), Polesel et al. (2005a) and Lamb and Vickers (2006) seem to strongly endorse the continuation and possible expansion of this approach.

In summary, considered reform is needed in the structures of contemporary schooling to enable access to senior school education to a broader range of students and in particular those leaving school early. The NSW Catholic sector does provide a range of appropriate VET delivery, yet, with creative alternatives in structures, could provide a greater range and at a greater depth. The schools display a willingness to combine both in-school delivery and external provision to accommodate student needs within fiscal restraints.

\textit{VET and transition}

Student transition from school to post-school activity is a critical measure of the success and the appropriateness of the schooling experience. Transition of individual students to appropriate social contexts is the endeavour of all schooling systems, explicitly or implicitly. Many NSW schools seem to overtly promote the percentage of ex-students eligible for progression to university as ‘the critical transition measure’. As only about a third of all students in NSW

\textsuperscript{88} Courses packaged to enable students to access an optional examination for university entry calculation are known as VET Framework Courses and all such courses have a mandatory work placement requirement.
schools (slightly higher for Catholic schools) progress to university in the year following their HSC (Evans 2005), the use of this measure as the most important transition measure is flawed, particularly without consideration of the ability and intentions of the individual and the transiting cohort in general. The NSW Catholic sector does not currently have a systemic approach to gathering student destination information. Some Catholic dioceses in NSW and some individual schools do collect exit data on transition intentions from graduating students; although these data do provide some insights, it is usually collected prior to the release of the results of the HSC and largely reflects student desires (‘a wish list’) rather than transition realities. The disparity between speculation and reality is particularly true for students without higher academic ability and ambition; as described in the earlier section on retention. These data collected from exit surveys, whilst they may be utilised in individual schools or dioceses, are seldom aggregated to form a collective transition picture across dioceses or for the NSW Catholic schools system in general.

Using a national modelling approach, Anlezark et al. (2005) found that VET in schools graduates have a higher rate of transition into further education and training or full-time work than do non-VET graduates, despite the latter group generally displaying higher general academic ability. Polesel et al. (2005) found that VET students in NSW schools displayed outcomes similar to those presented by Anlezark et al. (2005) for students nationally. The same study of Polesel and others (2005) showed that this pattern is even more marked for students engaged in traineeships and apprenticeships whilst at school (Polesel et al. 2006b). The study also found that HSC VET students with low academic ability made better transitions than non-VET students of similar ability (Polesel et al. 2005). It would seem that this is also true for early leavers and particularly for early leavers from Catholic schools.

Individual student tracking of early leavers conducted as part of this study through survey data for NSW Catholic school students confirm the research by others (Polesel 2010; Polesel & Volkoff 2009) that young women are at greatest social and financial risk as a consequence of leaving school before the completion of the senior school credential (refer to Figure 8.14 below).
When the sample represented in Figure 8.14 above is analysed by SES quartile (Figures 8.15 and 8.16 below), the number in some cells falls below statistically acceptable levels for definitive statements to be made and where this occurs these cells have been removed from the analysis. Given this rider, the pattern would seem to indicate that early leavers from higher SES households were more likely to be able to gain employment and to access post-school study or training. The pattern (Figure 8.14 above) confirms the finding that early leaving males from NSW Catholic schools at all SES levels made better transitions than did females.
Figure 8.15: Percentage of early leavers from NSW Catholic schools in paid work by SES quartile and gender

(Data source: ACER survey 2010)

Figure 8.16: Percentage of early leavers from NSW Catholic schools in post-school study by SES quartile and gender
Of those leaving NSW Catholic schools from Year 10 in 2007, 57 per cent were boys. We know from other studies and from data displayed above that the prospects for early-leaving boys were better than for girls (Teese et al. 2007; Polesel & Volkoff 2009; Karmel & Liu 2011) and that early-leaving boys were more likely to partake in post-school training due to the greater opportunity for boys to engage in trade apprenticeships (Teese 2000; Teese et al. 2007). This finding was confirmed for the NSW Catholic sector from the survey data and is displayed in Figure 4.6 in Chapter 4.

Of the students leaving Australian schools in 1998 before the completion of Year 12, 37 per cent engaged in VET in the year after leaving school with the rate being higher for males (42 per cent) compared with females (30 per cent). Ball & Lamb (2001) report that early leaver transition from Catholic schools to VET subject enrolment in 1998 was 44 per cent compared with 36 per cent from government schools and 31 per cent from independent schools. This may indicate that if the provision of VET within the schooling system were to be enhanced that there may be potential to appropriately retain a portion of these early-leavers at school longer. This finding may also indicate that students leaving Catholic schools before obtaining a senior school credential may be more highly motivated to engage in further education and training upon leaving school compared with students from other school sectors. Of the early leavers from Australian schools, 40 per cent enrolled in trade-related courses; it may be further deduced that if schools provide trade related courses as part of the school offering (even on a part-time basis) that fewer students would feel the need to leave school before the completion of Year 12. Of the courses studied by this group, the pass rates were highest for those engaged in trade-related programs; indicating a higher level of motivation, interest and commitment (Ball & Lamb 2001).

Students who undertake VET at school display smoother transitions than those who do not engage in VET, though (as would be expected) the effective difference between the two groups lessens over time (Anlezark et al. 2005, Lamb & Vickers 2006; Karmel 2007). These findings are consistent with other studies for students in other states (Polesel & Teese 2004; Polesel & Helme 2003; Lamb & Vickers 2006) and by deduction should also be true for transition of VET students from the NSW Catholic sector. Evans (2005) in his study of NSW VET in schools found that VETIS “gave students a competitive edge over non-VET students in their transition to the labour market” (Evans 2005, p.8). This position was strongly supported by industry parties consulted in the study and it should be noted that this was also confirmed by the fact that
16 per cent of students involved in work placement as part of their VETiS experience moved from school to take up a job with their work placement employer.

Vickers promotes a concept of an emerging new *settlement* where it becomes the norm that the boundaries between school and work are blurred with many young people following emerging combinations of education and work (Vickers as presented in a seminar at the Board of Studies NSW in 2007). Under this paradigm, transition ceases to be a point in time, it potentially becomes a school supported process. Students most at risk of not making a successful transition may be able to take longer and access more support (provided by the school and possibly other organisations) in order to find their appropriate position in the workplace or in further education or training. This new settlement seems to be emerging quickly with one in three Australian secondary school students already participating in part-time employment (Vickers 2007). There may be a challenge for Australian schools to provide appropriate structures to encourage the use of part-time employment within the learning process for greater benefit in the transition progression (Vickers et al. 2003; Lamb & McKenzie 2001). In support of this argument, at the national level, students engaging in VET programs in Year 11 and not returning for Year 12 showed significantly better transitions to full-time work and to further education and training than did non-VET students leaving schools at the same time (Anlezark et al. 2005).

Based on results alone, there is no question that NSW Catholic schools comprise a sound system of high-quality educational institutions. NSW Catholic school provision and its quality are very well received by the community, parents and students. Many NSW Catholic schools publish their HSC results with pride and rightly so, but possibly without regard for the innate student body. Such reports and the comparisons that evidently result can therefore be misleading. It would be expected for a cohort with higher than average academic ability to achieve higher than average outcomes. Schools (including Catholic schools) need to be cautious when linking the reported HSC and university entry results of some as a reflection of the school or student cohort success, particularly if linking such discussion to successful transition.

A high Tertiary Entrance Score (TES) is not a licence to a successful transition. Many students with a high TES do not successfully progress to further study or to the world of work although the likelihood is greater than for those unable to ‘prove’ themselves academically in the post-compulsory years of schooling.
Figure 8.17: Destination of NSW Catholic school leavers in study or training in the year after leaving school in 2009 by gender

(Data source: ACER survey 2010)

Note: This Figure contains only data for students that were in study or training in 2009 after leaving school in the previous year. It does not include students engaged in other activity, such as: work, travel, gap year, seeking work, etc. Of those (N=21,827) that were enrolled for the 2006 School Certificate in a NSW Catholic school 51.7 per cent are represented in this Figure.

Males were more likely to be able to access apprenticeships than females upon leaving NSW Catholic schools. This aligns with the research of others (Teese & Polesel 2003; Karmel & Liu 2011). Teese et al. (2007) and Karmel and Liu (2011) recognise apprenticeships as a sound pathway for males most often resulting in good social and economic outcomes with good completion percentages. Unfortunately, this pathway is limited for girls generally and girls in the 2008 HSC cohort in NSW Catholic schools were more likely to be offered traineeships as the employment and training contract alternative which have much less likelihood for social and economic security. Of NSW school graduates in study or training, a higher proportion of females than males entered university though some may have chosen this pathway due to there being a lack of alternatives for girls (Karmel & Lui 2011).
Completing Year 12 had little effect on whether males (as a percentage of the gender group) leaving NSW Catholic schools entered study or training in the year after leaving school in 2008. The level of the study or training may have been different for the two groups but generally around 70 to 75 per cent of all leavers, Year 12 completers and non-completers, entered study or training in the year after leaving school. The variation between female completers and non-completers was marked. Of females who completed Year 12 in 2008, 80.4 per cent were in study or training whilst for those leaving before completing Year 12, only 44.4 per cent were enrolled in study or training programs. Once again this confirms that girls and young women who do not complete Year 12 are at greater social and economic risk when compared with boys and young men.
Potential for access to paid work also seemed to be improved for girls from NSW Catholic schools if they are able to complete their full twelve years of schooling (plus kindergarten) with the research data showing that the percentage without paid work is halved for girls and young women who completed their schooling compared with non-completers. When those in paid work are analysed by gender and SES quartile a general pattern emerges, refer to Figure 8.20 below.
Figure 8.20: Year 12 completers and non-completers in paid work by gender and SES quartile

(Data source: ACER survey 2010)

Note: Numbers in some cells are statistically low and have not been included for validity

For girls completing Year 12 the variation across the quartiles of SES was low, yet, for Year 12 non-completing girls, the lower the SES of the household the less likely was access to paid work after leaving a NSW Catholic school. The majority of non-completing girls (63.3%) from the lowest SES quartile were unemployed. Boys and young men displayed slight variation across the SES quartiles but not a statistical trend.
SES seems to be a weak influence on the capacity of Year 12 completing students to engage with study or training in the year after leaving schools. However for non-completers the influence of SES seems particularly strong with 45 per cent of students from the lowest SES quartile not engaged in further study or training; further analysis by gender is shown below.
Year 12 completion seemed to be a weak influence on the capacity of boys from the lowest SES quartile from NSW Catholic schools to engage with study or training in the year after leaving schools. However, non-completion of Year 12 for girls from the lowest SES quartile had a marked influence on their capacity to engage in further study or training with only 45.5 per cent enrolled for further study or training compared with 91.7 per cent of girls who completed Year 12 study from the same cohort. These findings of gender disparity directly align with the recent work of Karmel and Lui (2011) where they used data from the Longitudinal Survey of Australian Youth data (LSAY) for the 1998 cohort to age 25. This research showed the same pattern for this one cohort to age 25 where early leaving young women were much more likely to be socially, economically and educationally dislocated as compared with all males and young women who were able to complete Year 12.

As indicated earlier, NSW does not have a systematic approach to the collection of student transition information. Instead of an annual collection approach, NSW has contracted research projects to address particular areas of interest as needs determined. This ad hoc approach has...

(Data source: ACER survey 2010)
provided four valuable one-off reports over the past decade yet fails to deliver comparative or longitudinal transition information. Due to a lack of longitudinal transition information, NSW (inclusive of the Catholic sector) tends to speculate on the major influences on successful transition outcomes. To help ensure successful transition, schools are generally able to develop better school experiences for students when they are based on transition measures of school success (Lamb et al. 1995; Teese & Watson 2001). The NSW Catholic sector may reap significant benefit from a systemic approach to the collection of transition data.

“HSC VET graduates consider themselves to be better prepared than non-VET graduates to make an effective transition to work and study, on most measures.”

(Research conducted in NSW government schools by Polesel et al. 2005, p.i)

In NSW government schools, when compared with students not engaged in an apprenticeship or traineeship, school-based apprentices and trainees were more than twice as likely to make the link between school delivered VET and their ability to find a job and to use the skills learned at school when performing that job (Walstab et al. 2007; Polesel et al. 2005). Although there is strong endorsement for the quality of transition of part-time trainees and apprentices, engagement remains low and may even be showing a downward trend (2006-2011) in all sectors but particularly in the NSW Catholic sector. This direction is at odds with the target cited in the NSW Strategic Plan for VET 2008-2010 which indicates a 17 per cent increase in school based trainees and apprentices by 2010 (Iemma 2006). Although the benefits for students in NSW engaging in such programs are undeniable (Evans 2005; Polesel et al. 2005; Karmel & Lui 2011), the structures of contemporary NSW schools and the HSC seem to deny NSW students this opportunity. NSW Catholic schools might advantage students by looking at structures such as HSC Pathways (studying the HSC over longer than 2 years) to encourage student engagement in these worthwhile programs. More creative school timetables where students do not have to miss classes in non-VET subjects to access on-job training would also encourage more students to consider apprenticeships and traineeships whilst enrolled in the NSW HSC.

Based on an unpublished survey conducted in 2007, Catholic schools’ principals endorse the implementation of part-time traineeships and apprenticeships in concept, yet in general, they are not enthusiastic about providing such access in their own school.

The healthy percentage of students from NSW Catholic schools eligible for university entry is commendable. However, it is not a measure of the success or otherwise of the implementation and delivery of vocational education and training. Research conducted on broader cohorts would suggest that transition for VET students in NSW Catholic schools is comparatively sound nevertheless without empirical data this statement cannot be endorsed. It would seem that
engagement in VET as part of the HSC is a good ‘safety net’ for students unsure of their transition pathway or incapable of a transition to further study at university or looking for a workforce engagement to support their university study. Girls leaving school before the completion of the HSC are more at risk of a poor transition than are those who complete the HSC. The risk rises as the SES of the household drops and early leaving girls in particular are at greater risk of social and economic disadvantage.

**Student and parental satisfaction**

Catholic education could be described as a ‘service\(^{89}\) provided within a context’. Catholic schools are very aware of their obligation to provide a rich pastoral educational environment in which all students are supported to reach their full potential (Bishops of NSW and the ACT, 2007). Individual Catholic schools in NSW would generally describe themselves as ‘highly regarded’ and as ‘delivering on their mission and vision statement’. What is the evidence for this? Can satisfaction be determined if those to whom the service is provided are not specifically asked to make comment in regard to the quality, suitability and comprehensiveness of this service? This thesis supports the notion that ‘those to whom the service is provided’ should make judgement on the quality of the service. Maintenance of enrolment is a simplistic and inadequate measure of satisfaction if the school is committed to an improvement model of service (provision). With apparent retention (Years 10 to 12) dropping slightly in NSW Catholic schools whilst continuing to rise in the other school sectors in NSW (ABS 2008b), a more detailed approach to satisfaction measurement becomes even more pressing.

As with transition information (described above) there is an inconsistent approach to the collection and collation of satisfaction information within the NSW Catholic sector. Qualitative data collected in 2010 (ACER survey) from a statistically random sample of 650 parents or carers of students in a cross section of NSW Catholic schools \((N=16, 12.8\%)\) shows strong satisfaction within the measures used. Figure 8.23 shows the responses.

\(^{89}\) Service in this context is used in a pastoral context as opposed to a commercial one.
Figure 8.23: Parent or carer responses to the question - "How satisfied are you with the school in relation to preparing ...." by gender of student

(Data source: ACER survey 2010)

If these responses are used as the measure, parents and carers of girls in NSW Catholic schools were generally more satisfied than those of boys in the way schools prepared their youth for post-school activity. NSW Catholic schools may cater better for girls than boys or boys and their parents and carers may be more difficult to satisfy or both? Preparation for university and a successful career showed the greatest disparity between the sexes with 7.6 per cent and 3.9 per cent difference respectively. This difference may be a reflection of the greater percentage of girls over boys progressing to university. With all measures showing satisfaction (very well or well) greater than 80 per cent, it is clear that NSW Catholic education is meeting the expectation of the majority of parents and carers in the measures explored in the study.
It should be noted that vocational training and workforce preparation were the school functions of NSW Catholic schools showing the least satisfaction by parents and carers with all responses generally displaying what could be described as high level satisfaction. This may indicate that schools are more oriented towards more academic ambition.

A survey of over 6000 HSC graduates conducted by Polesel (2005) in 2005 (2004 HSC cohort) showed that nine in ten respondents agreed or strongly agreed that “overall, doing the HSC was worthwhile”. Findings also indicated that students enrolled in VET subjects had a more positive experience of the HSC when compared to non-VET students. VET students had better post school transitions, including progression to university with as many as 25 per cent of HSC VET students moving to university study in the year after the HSC (Polesel et al. 2005).

Evans (2005) supports the argument that the number of students engaged in VETiS programs90 is itself a strong measure of satisfaction. Students choose VET for many reasons, yet with the breadth of curriculum choice available to them, few would feel compelled to select VET due to there being a lack of alternatives91. It would seem that many students approach VET as a means to their broader development as much as a pathway to employment (Evans 2005). Although the reasons for enrolling might be many, students in NSW “unequivocally endorse the value of their VET in schools subjects” and find that VET markedly influenced their sense of satisfaction and achievement in relation to their post-compulsory schooling (Polesel et al. 2005).

Student retention in VET courses when moving between Years 11 and 12 might be considered to be a small measure of student satisfaction. Students in the Preliminary year (Year11) are required to attempt a minimum of 12 study (HSC) units, usually comprising six individual 2 unit HSC subjects. Whilst in the HSC year (Year 12) students usually study two fewer HSC units (i.e. 10 units). Students therefore usually discontinue their least favoured subject when moving from their Preliminary to their HSC study program. With English being compulsory and if all other subjects were judged equally by students it could be expected that HSC enrolments would reflect a 20 per cent reduction of the enrolment numbers to those in preliminary subjects after allowing for a decline in the total cohort between Years 11 and 12 (refer to Figure 8.24).

90 NSW Catholic schools have about 30 per cent of students engaging in VET as part of their senior school experience.
91 The NSW HSC offers a relatively limited number of subjects where applied learning is an emphasis, effectively limiting choice for students with a desire for this style of learning.
Figure 8.24: Apparent retention Years 11 to 12 in NSW Catholic schools for all students and for enrolment in VETiS subjects (2001-2008)

(Data source: Board of Studies NSW student records 2001-2009)

Note: ‘ALL’ refers to all students not ‘all subjects’ and is an indication of student retention not subject retention as are the data for ‘VET’ which are retention for ‘all VET subject enrolments’.

As discussed above, if students were to drop out of courses on an even basis, the difference should be 20 per cent yet the difference is consistent at 10 per cent. Using this logic, it could be said that students in NSW Catholic schools are more satisfied with VET delivery when compared with non-VET subjects, potentially by a factor of 100 per cent (e.g. a 10% decline compared with the average of 20%). Also one may observe there was a period of stabilisation up to 2004 and that after this time (2004-2008) the retention pattern for all students mirrors that of VET, indicating about 2 per cent decline over this time. Sweet (2008) may account for this movement as being linked to a healthy and expanding national economy.

The study acknowledges that using this concept as a measure of individual student satisfaction may be limited. It cannot be assumed that students retaining subjects are necessarily satisfied with the provision. Also schools report that VET students are more likely to move to employment before completing the HSC compared with non-VET students. This is especially the case where compulsory work placement as a requirement of the HSC serves as a bridge for
the transition to the workforce by introducing students not only to the world of work but to prospective employers who may well make an employment offering after an unpaid work placement. As indicted above, sixteen per cent of students involved in work placement as part of their VETiS experience moved from school to take up a job with their work placement employer (Evans 2005). Whilst acknowledging that VETiS improves retention from Years 10 to 11, Anlezark et al. (2006) reports this drift to employment of VET students during or after completing Year 11 as “a negative effect to retention from Year 11 to 12”. Although this statement is true in purely statistical terms, the contrasting statement for the same situation might describe “the outstanding transition outcomes” for the same group of students being viewed as early-leavers in Anlezark’s study. 92

With these considerations in mind,

Although it is recognized that student satisfaction is a sound measure to use in this thesis, judgement is limited due to the lack of comprehensive data for this purpose. Based on the data available and research conducted for other and broader cohorts, it would seem that students and their parents are generally satisfied with the delivery of formal Vocational Education and Training (courses) in NSW Catholic schools. However, they are possibly less satisfied for the informal vocational preparation for the transition to the world of work (refer to Figure 8:23).

Conclusion

VET provision in the post-compulsory years is a valuable contemporary approach to support student engagement, and therefore retention, yet it may be ‘too little too late’ for many, particularly for students from low SES backgrounds, disengaged girls and for those not experiencing ‘academic success’ in the early years of secondary education. Disengagement during early and middle secondary schooling is an issue that should be explored (beyond ‘it being the students fault’) (Chung et al. 1998), while concurrently seeking to provide a breadth of quality VET programs within an open selection model. This model must be available without penalty - if Catholic schools wish to use VET as an equity strategy to address disproportional engagement and ‘success’ (Teese & Polesel 2003).

Inequity exists in that the university pathway takes precedence over VET in the manner in which schools offer, timetable, resource, celebrate and consider the pathways. To address this situation, NSW Catholic schools need to consider a more integrated provision of education,

92 Accurate and complete destination data would allow NSW Catholic schools to move beyond speculation based on apparent retention statistics.
training and employment services in partnerships with other schools, working with external providers and employers (Malley et al. 2001; Lamb & McKenzie 2001; Haukka et al. 2004; Richardson & Teese 2008). This approach may require a stronger commitment to equity, a willingness to address social need and to welcome responsibility for the outcome of the educational experience provided; commitment that goes beyond those students progressing to university study. To establish this more inclusive system, the Catholic sector would need to be willing to move towards more flexible arrangements where students are encouraged to engage more (on their terms). Catholic schools would also need to develop a greater mutual respect and enhanced value of the possible contribution of all parties. Catholic schools might need to be more willing to embrace vocational learning nested in employment contracts by way of school-based traineeships and apprenticeships (Keating et al. 2001; Evans 2005).

Curriculum offerings (VET and others) which support alternate pathways (particularly for but not exclusively for low achievers) need to be considered and developed for implementation in Catholic schools (Polesel & Teese 2004). The unquestioned supremacy of the HSC, as the best or even preferred pathway for all senior students, needs to be challenged, particularly for those displaying non-achievement and under-achievement in such a pathway within the current system. This being said, a further challenge for the NSW Catholic sector is to offer and deliver VET appropriate to both student need and context. VET is valuable to a wide range of students (Teese & Walstab 2008), just like other important subjects such as Mathematics or Geography and as such it must be offered as ‘equal’ by the manner in which it is offered, resourced, timetabled, funded, and celebrated. The role of the school in shaping aspirations and in preparing young people to approach their pathway (university, VET, workforce, other) with confidence, pride and self-esteem is unquestioned; yet schools seem to perpetuate a hierarchy between and within student pathways.
Chapter 9

Why do students choose the subjects they do?

Clear patterns have emerged in Chapters Five, Six, Seven and Eight. Amongst other findings, it is clear that students from lower SES backgrounds are more likely to enrol in the least academically challenging subjects available in the NSW senior school curriculum where academic level is measured by the mean of TES results for subjects. For this reason, it is most important to know what influences are operating on the students when they are making their subject choices. The survey conducted by ACER in 2010 provides a good deal of information about the influences on student choices and their teachers’ views on the role of the school, student counseling and assistance for students when making these choices. In addition, the survey gathers information about the support provided for the transition to post school endeavours, in particular the transition to the workforce. This chapter examines the findings of the ACER survey as it related to these influences in NSW Catholic schools.

Although detailed information on the methodology and content related to the ACER surveys (2010) is provided in Chapter Three, it is essential to emphasise the importance of these data for this research. As indicated in Chapter Three, three data files containing only Catholic schools’ data were provided to this researcher to conduct an analysis, namely: student survey\(^{93}\) responses (\(N=1566\)), parent and carer survey responses (\(N=647\)) and school personnel survey responses (\(N=1184\)) from a sample of catholic schools (\(N=16, 12.8\%\)). (Copies of the survey instruments are provided in Appendix Three.) These data helped the researcher to further investigate the potential influences producing the results found from the analysis of the quantitative component of the research as documented in the previous chapters of the thesis. Although some survey results have been appropriately inserted into previous Chapters there have been important additional findings from these data.

Upon investigation into the influences on choice of senior schools subjects, analysis conducted by this researcher of the data provided by ACER indicates that students in NSW Catholic

\(^{93}\) The student survey was an adaption with permission of the On Track student survey of the Victorian Department of Education and Early Childhood Development.
schools reported that the major influence is whether or not they like or are interested in the subject; about 90% of respondents reported that this factor influenced *a lot or somewhat* their choice of subjects. Other major influences included: *maximising the ATAR* (university entry) *score*, *expected career at age 30* and *parental* and *teacher influences*. As with career choices discussed below, Career Advisers generally had limited influence with 72.3 per cent of students reporting that Career Advisers had *little or no influence* on their subject selections.

**Figure 9.1: Reported influences on choice of senior school subjects by students in NSW Catholic schools**

If the senior school experience is accepted as a critical contribution to successful post school preparation for Australian youth, the correct mix of access to curriculum needs to align with the post-school destination. Figure 9.1 shows that amongst the stronger influences on subject selection is the desire for university entry and a broader choice of university course access by maximising the potential for a higher Australian Tertiary Admissions Ratio (ATAR). However, only about half the students nominating *maximising ATAR* as a strong influence on senior subject selection actually enter university using their ATAR results in the year after the NSW HSC. At the time of senior subject selection, if the students not entering university happened to be ignoring curriculum better suited to their eventual pathway, it might be concluded therefore, that their senior school experience was potentially a preparation for an unrealisable post-school
eventuality. In such cases, NSW Catholic schools might be catering more for false expectations than for students’ ability.

It is encouraging that also listed amongst the strong influences on subject selection are: likes and interests and expected career at age 30. However, it is potentially disappointing for schools, that the ability of the individual (as measured through School Certificate results) and career counselling provided by the schools are listed amongst the lower influences in senior school subject selection. Research would suggest that students do largely self-select study programs with external advice, yet their perception of their own ability is often highly inaccurate in both overestimation and underestimation (Anlezark et al. 2006). Findings from the ACER survey of Teachers in NSW Catholic schools (2010) support this position, refer to Figure 9.2.

Figure 9.2: NSW Catholic school student expectations as judged by school staff by school position

The ACER survey of school personnel provided data showing that staff in NSW Catholic senior schools believed that many more students tended to have unrealistically high expectations as opposed to low expectations. As shown in Figure 9.2, staff at all levels in the school showed this understanding, with school principals least strongly believing that students had
unrealistically high expectations, with 41.2 per cent of principals agreeing or strongly agreeing. When the ACER survey data is further analysed, a similar percentage of Catholic school staff (52.6%) to those that agree or strongly agree that students have unrealistically high aspirations, also believe that it is either true or somewhat true that the school provides inadequate career advice. If you accept the findings shown in Figure 9.2, it would seem that the majority of senior students in NSW Catholic schools had unrealistic aspirations for their post-school pathway as judged by school staff. These findings suggest that pathway counselling is a critical service of the school in order to maximise the potential benefit from the senior years of schooling. Students misplaced in subjects beyond their capability might have greater long term benefit from pathways more closely related to their aptitude. However, the responses to further survey questions shown in Figure 9.3 below, contradict to some extent, the views expressed above.
Figure 9.3: Judgements on school activity by NSW Catholic school staff by school position

(Data source: ACER survey 2010)
As shown in Figure 9.3, the issue of alignment of student interests and ability with appropriate aspiration generates the greatest variation across staff within the schools. It should also be remembered that 21.3 per cent of students in Catholic schools did not make senior subject selections but chose to leave their school altogether. For these students, the choice (to stay or leave school) may have been of an even higher order (refer to Figure 4.6) with 33 per cent of early leaving girls and 18 per cent of boys reporting that a dislike for school, teachers and lack of interest were major reasons for them deciding to leave school. For such students, it is hoped that counselling was provided by the school from earlier in their schooling experience, to ensure that such a momentous decision was their best possible choice.

Although Catholic school principals believed that the curriculum offered was catering well for student abilities, others in the schools did not support this position as strongly. Year coordinators who counsel the students believed that Catholic schools could have done more to cater for ability through the curriculum offering and to help align ability with curriculum. Diversifying the curriculum in any school comes at a cost. In non-government schools in particular, small classes are hard to justify against the pressure of a balanced school budget and no one is more aware of this than the ‘autonomous’ Catholic school principal. Catholic schools cannot be all things to all students, so compromises need to be considered but in considering such compromise it is hoped that those in greatest need are considered first as is the mission of Catholic education (Bishops of NSW and the ACT, 2007). The results in the survey suggest a strong interest in students after they leave school with all principals disagreeing or strongly disagreeing that the school was not really concerned with what happens to students after they leave school. Schools with strong interest in post-school transition and progression might show evidence of this by destination and satisfaction surveys conducted in the years following school graduation, ex-student support services, welcoming ex-students back into the school to access career counselling and advocating on their behalf. School might judge their ‘interest’ by the manner in which such measures are embraced and delivered.

Senior school subject selection is certainly linked to career intentions in a number of cases. However, it must be remembered that many students are unclear of their career pathway at the time when they are making their selection of senior study options (usually around August of their School Certificate year (Year 10). When asked about influences on career pathway processes students reported similar influences to those for subject and course selection. As discussed in the Chapters on English, mathematics and science, the New HSC (introduced in 2000) was intended to encourage students from low SES backgrounds to enrol in subjects at higher academic levels (McGaw 1997). The analysis provided in these chapters indicates that this well-meaning intention has not been realised despite curriculum change in both content and
in the manner in which it is packaged. Analysis of ACER survey data for students in NSW Catholic schools would suggest that non-school advice is more likely to be the major influence (refer to Figure 9.4 below).

Figure 9.4: Students' perceptions of who influenced their career choice

Parents of students in NSW Catholic schools, and in particular the mother, seemed to be the major influence on students’ career pathway choices. More than 50 per cent of students reported that their mother had a lot or some influence in their career pathway decisions and greater than 50 per cent of students reported that their father had a lot or some influence in their career pathway choice. This finding aligns with the findings in other studies of Australian youth (Dietrich & Kracke 2009). Also of note is the high proportion (43.6%) of students that reported that school Careers Advisors had no influence at all on their choice of career.

If it is accepted, that these influences, external to the school, will continue to be the most influential into the future, the imperative on the school might be to seek means of communicating with parents in such a way to ensure that they become skilled and better equipped to provide the best possible advice and encouragement to their children. This might involve the direct provision of accurate and easily understood information as well as workshops on how to engage and work with adolescence in the difficult task of pathway planning when the student themselves is unclear of their own intentions and aspirations. This task becomes further complicated where the household speaks a language other than English or where family contact with the school has been limited.
The low level of influence of career advisers in Catholic schools might indicate a lack of investment or an ineffective model for transition preparation and career advisory services as the view of students seems to be in some conflict with the views of their parents where only 2.3 per cent were very dissatisfied and 14.4 per cent dissatisfied with the level of career advice provided by the school. The vast majority 76.9 per cent were either satisfied (50.5%) or very satisfied (26.4%) with 6.4 per cent unsure. The level of influence of career advice provided by the school might materialise more from trusted teachers (refer to Figure 9.4) as opposed to the career adviser and this might account for the variation between student and parent responses. However, the distinction between career education and career counselling is a critical one to make. Although many teachers in the school may be involved in career education, the skills needed for counselling are usually limited to one or two trained teachers. For many students, the need is counselling and this would seem to be lacking in NSW Catholic schools as shown by student response in Figure 9.4. Teachers’ perceptions of the career advisory service in NSW Catholic schools on the other hand were closer to those of the parents than the students as presented in Figure 9.5 below.

Figure 9.5: Teachers’ perceptions (all school respondents) of transition preparation and career advisory services provided by NSW Catholic schools

(Data source: ACER survey 2010)
When responses displayed in Figure 9.5 above are broken down by the respondents’ position in the school (Figures 9.6 and 9.7 below), it is not surprising that as responsibility (authority) in the school increased, positive perceptions of the schools’ functions also increased.

Students and school personnel show variation in their perception in relation to the role and adequacy of career and pathway advisory services provided in NSW Catholic schools. The role of the school and individual staff roles within the school in the provision of career advice and workplace preparation may at a minimum need clarification and potentially enhancement to meet the expectations of senior students and some of their parents. Furthermore, such services might be essential to meet the goal of the NSW **New HSC** whereby more students from low SES backgrounds progress to the senior school and access subjects suited to their potential post-school pathway (Aquilina 1997).

**Figure 9.6: Response to the question “There is inadequate Career Advice provided by the school” by school position**

(Data source: ACER survey 2010)

As discussed in Chapter eight, the percentage of senior students participating in Vocational Education and Training has stabilised in NSW Catholic schools over recent years and seemingly fluctuate more against the state of the economy than as a consequence of direct school influence. Most VET students (greater than 90%) are enrolled in a VET subject that requires a mandatory workplace experience as part of the subject delivery. For these students (around 30%
of all students), their workplace preparation is potentially enhanced due to this exposure, compared with those without such an opportunity. Where less than 35 per cent of the total student population (Evans 2005) from NSW Catholic schools (all students, including early leavers) progressing to university in the year after their HSC then it is most likely the majority are seeking work with around 10 per cent in fulltime tertiary study at institutions other than universities. The preparation for the transition from being a school student to an employee is therefore very important in the lives of the majority. It might be expected that the preparation for this transition would be central in the senior school curriculum in NSW Catholic schools. However, as with the issue of the provision of career advice, there is diversity between schools and within schools based on the responses to the ACER teacher survey (2010) when it comes to the preparation of students for the transition to the world of work (refer to Figure 9.7).

**Figure 9.7: Response to the question “The school does not adequately prepare students for the world or work” by school position**

![Chart showing response to the question](chart.png)

(Data source: ACER survey 2010)

Around 25 per cent of all staff indicated that NSW Catholic schools did not adequately prepare students to join the work of work. If around half of the graduates are making the transition directly from school and the rest in the years following, it would seem that such a preparation might be an oversight in some schools and by some teachers. It is also likely that many teachers do not see such a task ‘as their responsibility’ yet make the judgement that others are not doing “their job” or that the structures in the school are such that this type of preparation is not a role that the school should be addressing. As shown in Chapter 2 (refer to Figure 2.4) the employment prospects for young Australians is becoming more challenging and the transition
potentially more difficult. In this climate it becomes in more essential that schools consider their responsibilities in transition preparation and even management, particularly for the most vulnerable, early leavers, those in regional locations and girls. The role of the Catholic school may be clear in most endeavours yet the role of the school in workforce preparation seems to be unclear or even ambiguous as Figure 9.8 shows.
Figure 9.8: The role of the school as viewed by staff in NSW Catholic senior schools by school position

(Data source: ACER survey 2010)
NSW Catholic school executive staff (principal and deputy principal) generally viewed the preparation of students to get a job as a major function of the school. This view was not shared by classroom coordinators (home room teachers) with more than half stating that this endeavour is only of somewhat or no importance to the school. More than 20 per cent of senior teachers shared this view. If such a task is important to the school executive, this may need to be communicated to all staff and school structures organised such that job seeking and workplace generic skilling receive emphasis. This ambiguity may in some way be linked to the 20 per cent parental (or carer) dissatisfaction on this issue as shown in Figure 8.23 in Chapter 8.

Schools often describe their worth by the percentage of their graduates within the ‘higher order’ post-school destinations. Few NSW schools appropriately track their students’ destinations beyond exit surveys. So the school promotion of ex-students’ achievement (destinations) is likely to be inaccurate at best and possibly misleading; for example, where schools celebrate transition to university without confirming if their graduates actually enrol in or complete the course in which they enrol\(^94\). The concept of appropriate student destinations (pathways) would seem to be a far more ethical approach to the promotion and judgement of post-school destinations. There is clearly social status linked to university study and the achievement of ‘the degree’ (Teese 2000).

The Review of Australian Higher Education (Bradley et al. 2008) recommended the setting of targets for university enrolment by aspirants from low SES backgrounds, in essence mandating (and potentially legislating) an outcome that education and social pressures alone have been unable to achieve. Although this is noble in intent, the premise of this policy that university education is the ‘best or preferred pathway’ may be an example of the university pathway once again being raised higher on the pedestal, helping to explain why students choose the senior school subjects they do.

This chapter has presented some insight into why students choose the subjects they do and discussed the position and some opinions of actors in the process. Schools need to be aware of the major actors and the influence they may be having on student pathways in the senior years of schooling. In being aware, school can potentially support and inform the influential actors to help ensure the most appropriate pathways within and beyond the senior school experience in NSW Catholic schools. The role of the school in the process of pathway planning may be unclear and as such, ineffectual in some schools.

\(^94\) In Australia, up to 35% of students enrolling in a university degree course fail to complete their initially selected university study (MacMillan 2008).
Chapter 10

Discussion and Conclusion

This thesis has explored equity through analyses of participation, achievement and progression of students in Years 10, 11 and 12 in NSW Catholic schools and found many instances where social factors, in particular socio-economic status, have direct links to these issues.

Before considering the patterns of participation and attainment in upper secondary education which form the basis of this study, it is important to remind ourselves that many students do not even progress to upper secondary school (senior school) in NSW Catholic schools. Early leaving results in some of the most disadvantaged being further disadvantaged (Helme et al. 2005; Polesel et al. 2006a; Karmel 2008b; Lamb & McKenzie 2001; Polesel 2010). The evidence is clear that students who leave school early are at greater risk of social and economic dislocation and that youth from low SES circumstances are most likely to be early leavers, continuing an inter-generational cycle of disadvantage (Teese & Polesel 2003; Lamb 1996). Amongst early leavers, girls are at greater risk than boys, as pathways to social and economic security for early leaving girls are fewer than for boys (Polesel 2010; Lamb & McKenzie 2001).

Research in this thesis found:

- A disproportionate number of low SES Catholic school students (particularly boys) leave school after the compulsory years of schooling, generally compounding their disadvantage. Although girls from Catholic schools are less likely to be early leavers, they are at greater risk of social and economic dislocation if they do so. This is particularly the case if they are from low SES families, amongst whom 60 per cent leave school for unemployment or underemployment, from which they are less likely to return to further study or training than girls from more socially advantaged households. Girls are also far more likely than boys to be leaving school early for what might be termed negative reasons: family and personal reasons, not coping well at school, school too hard, don’t like school or teachers, not interested in content or attending.
• The early leavers from Year 11 and Year 12 prior to the award of the Higher School Certificate in NSW Catholic schools are also disproportionally from low SES households. Boys are more likely to leave due to what might be termed ‘positive’ reasons (apprenticeship, training and fulltime employment) where girls once again are more likely to be early-leaving from Year 11 or Year 12 for ‘negative’ reasons, such as, did not like school, not coping with school and personal reasons. As early leaving students of both genders are more likely to be from low SES backgrounds, there is the potential for compounding disadvantage.

• Performance in Year 10 is shown to be an indicator of the potential for staying on at school and of the prospects of achievement in the senior school. Catholic school students from low SES backgrounds underperform in the School Certificate (SC) examinations compared with the rest of the Catholic school cohort. The link between low School Certificate English Literacy results and early leaving is strong and there is a strong correlation between low SES and subsequent low attainment.

• As already indicated, students from a low SES background are more likely to leave early resulting in less opportunity to benefit from exposure to VET which in NSW is not offered in many Catholic schools prior to enrolment in the senior years. This lack of access in the compulsory years of schooling is a major factor as access to most trade areas (TAFE courses) after leaving school is exclusive to those with apprenticeships and traineeships. Students from low SES households are less likely to be able to access such pathways unlike early leaving students from high SES households wishing to pursue this avenue to full employment. Students from low SES households have fewer social connections that may enable access to apprenticeship in particular.

• VET does provide a ‘hook’ to keep students at school (Evans 2005) yet the attraction does not extend to those (23%) who choose to leave at the first possible opportunity. As the VET curriculum has increased in range over time, it would seem that it caters more for those who have already decided to stay at school as opposed to attracting a significantly greater percentage of students in NSW Catholic schools to enrol beyond the compulsory schooling years. As the majority of early leavers are from low SES communities, it might be said that VET is not the answer for those already disengaged from schooling. It also could be that for these students their opportunity to engage with VET is either too late or inaccessible prior to them leaving school.
The consequences of low socio-economic status (disadvantage) found in NSW Catholic schools as a result of this research are summarised below.

- Students from low socio-economic status households are more likely to enrol in the least academically challenging Higher School Certificate English subject (English Standard) and conversely are less likely to access HSC English at the higher academic levels. Even though students from low SES households enrol in English Standard in higher proportions than students for higher SES backgrounds, they are less likely to achieve good results, with regression analysis showing that students from advantaged households significantly outperform students from lower SES backgrounds in all levels of HSC English.

- HSC English curriculum displays a hierarchy whereby participation in the higher level English subjects (Advanced, Extension 1 and Extension 2) is more likely for students from higher SES backgrounds. The non-examinable Extension 2 subject which is assessed by the preparation and provision of a major work as opposed to an end of course examination seems to be more accessible to students from lower SES backgrounds.

- Students in Catholic schools studying HSC English and mathematics (and possibly science) tend to select fewer challenging subjects than their ability may allow when compared to the state as a whole. Although the exact reasons are unknown this finding may indicate a lack of confidence, students receiving poor advice or an endeavour to maximise the Tertiary Entrance Score. The trend is more pronounced for students from a low SES background.

- Boys dominate mathematics enrolments in NSW Catholic schools, as is the case for elective mathematics programmes in many nations. It is notable that the dominance increases as the difficulty of the subject rises, even though the previously determined mathematics ability (SC results) of female participants is on average, higher than for boys. Girls who do choose to enrol in more challenging mathematics subjects have proportionally outperformed boys in the same course where School Certificate Mathematics results are used as the measure.

- Students in rural Catholic schools are proportionally under-represented in higher level mathematics subject enrolment. This may be a consequence of the fact that more
students in rural schools are found in the low SES demographic. As for English, students from low SES families are overly represented in the lower level of HSC mathematics where they are outperformed by students from advantaged households (higher SES).

- As was the case with English, a broader range of mathematics subject choices is accessed by students of higher SES background. Students in the Mathematics General (least academically challenging) on average received 46 / 100 for Tertiary Entrance Score (TES) calculations in the 2008 HSC whilst those who enrol in Mathematics Extension 2 (the most academically challenging) received on average 87 / 100 TES. Compared with students from higher SES backgrounds, students from low SES households are less likely to enrol in all mathematics subjects other than the least challenging subject (Mathematics General).

- Students from the lowest SES quartile are overly represented in Senior Science (least academically challenging of the HSC science subjects) and under-represented in all other HSC science subjects (Physics, Chemistry and Biology). However, the disproportionality is less marked than for the English or mathematics curriculum. The NSW Catholic sector generally is proportionally under-represented compared with all students in all science subjects other than Senior Science. This is in contrast with the sound School Certificate Science results for students in Catholic schools which are proportionally higher than the state as a whole. This apparent selection of subjects below potential ability is consistent for all quartiles of SES.

- As with other HSC curriculum, science students in rural Catholic schools are more likely to be enrolled in the least challenging science subject (Senior Science) and are proportionally under-represented in all other science subjects. Due to the higher proportion of low SES households in rural locations the influence of SES may be stronger than the effects produced by location. Unlike the specialist science subjects (Physics, Chemistry and Biology), Senior Science is taught in only about 60 per cent of NSW Catholic schools. Students suited to this subject may be forced to enrol in more challenging subjects if they wish to study a science at senior school level. Lack of access may potentially disadvantage the disadvantaged students further.

- Boys dominate enrolments in Physics, Chemistry and Senior Science, while girls make up the majority of enrolments in Biology. The proportion of boys doing Senior Science
in NSW Catholic schools is significantly higher than the proportion of boys doing Senior Science across the state.

- Of students sitting the Senior Science (least academically challenging) examination 44.7 per cent are found in the lowest quartile for TES performance. It must be remembered that students from low SES households find Senior Science the most accessible of the subjects in the HSC science curriculum. This indicates the limited potential for transition to university for students from low SES families, given that these students form the majority of enrolments in this subject. The likelihood of enrolling in the university-preparatory science subjects drops as the household SES of the candidate decreases.

- There is an even spread across the quartiles of SES when analysing HSC English, mathematics and science as subject groupings (i.e. all students within the whole Key Learning Areas). What is remarkable is that students from low SES households do not choose to exclude themselves from enrolling in elective mathematics or science subjects but are more likely to be restricted to the less challenging and least rewarding (as measured by TES) choices in all cases. All students can choose their curriculum yet there may be no real choice where the curriculum is beyond the reach or ability of the students.

- The data indicates that students in higher SES locations have greater choice of alternative HSC pathways and curriculum packaging options (i.e. acceleration, pathways and compression) even though alternatives may most benefit the less academically able to a greater extent (Lamb at al. 2004a).

- NSW Catholic country schools (lower SES) provide a greater range of VET courses on average than do metropolitan Catholic schools. This is most likely to be a response to student demand where students in country schools prefer less academic subjects with applied learning components. If the provision of VET subjects costs more compared with traditional subjects (Allen Consulting Group 2003), the equity principle of ‘funding the need’ might mean that country schools should be offered a greater ‘slice of the funding pie’.

- Vocational Education and Training (VET) as an area of the curriculum is more accessible to all students, including those in low SES circumstances. Historically, VET
has been linked to the streaming of students on the basis of academic achievement and social background. Although there is no longer a policy in support of streaming, it would seem that VET is somewhat hampered in its implementation by this dated historical perception of VET being curriculum specifically for the poor, in academic and social terms.

- NSW fares poorly on national comparisons of VET participation on a number of measures – the percentage of students enrolled, the levels of the credentials awarded (usually Certificates I and II) and the percentage of students with indentures for apprenticeships and traineeships. These outcomes potentially indicate further marginalisation of those with the most reliance on VET for participation in the senior years; those from low SES households. International comparisons using the same indicators show that Australia is a poor VETiS provider. On international comparisons with other OECD countries, VETiS in Australia has low levels of provision in both proportions of students enrolled and the level of qualification offered.

- Although there is a relatively even gender enrolment across VETiS as a whole, girls in NSW Catholic schools dominate in three industry areas delivered in schools (Hospitality, Business Operations and Business Services) while boys dominate in the other seven Industry Curriculum Framework (ICF) subjects. Girls form a majority of the total senior school cohort yet their VET choices seem to be restricted to a narrower range of school delivered VET subjects.

- Compared with students from high SES backgrounds, students from low SES backgrounds are more likely to enrol in all ICF subjects other than Entertainment Industries which is mainly taken by metropolitan students from higher SES households. It would seem that the teaching spaces, the equipment required to deliver this subject and the workplace learning opportunities are more likely to come together in schools servicing communities of higher SES.

- NSW Catholic country schools have a higher proportion of students doing VET compared to metropolitan Catholic schools. Almost the entire curriculum delivered in rural locations comes with greater challenges for quality delivery due to a lack of specialist senior teachers and lower senior student numbers in each school, with the associated and potentially unsustainable smaller class sizes. In addition, for VET subjects, there is a lack of access to TAFE and other providers in smaller rural centres.
As low SES students are more likely to be enrolled in HSC VET subjects, these impacts on access can be significant.

- VET provides an applied learning opportunity which is a preferred learning method for some students from low SES communities (Lamb et al. 2004a). Despite this, the options for access to applied learning beyond the VET curriculum are few in the NSW senior curriculum. All students are required to enrol in English and three other HSC subjects to qualify for the award of a NSW HSC. For many students and in particular those seeking applied learning opportunities, this requirement can be an unsurmountable obstacle (Teese & Polesel 2003) rather than providing a broad curriculum experience; especially where the curriculum is similar to that from which students have already disengaged in the compulsory years of schooling.

- The NSW Catholic education tradition has until very recently been to universally provide comprehensive curriculum opportunities in senior schools. It has been acknowledged by some NSW Catholic dioceses and schools that senior students choosing alternatives which are potentially restrictive pathways are in fact ‘choices in action’ and not streaming. VET specific pathways in particular, have been considered useful alternatives and although favoured by students from lower SES backgrounds, these pathways are certainly not exclusive to such students. Students following such pathways have also progressed to university by means other than the Tertiary Entry Score. These alternate pathways to university are likely to become more common as the recommendations of the Bradley review (2008) are implemented to 2020.

- The research has shown that for boys intending to progress to either employment or further training, the achievement of the NSW HSC makes little if any difference to these prospects. Boys from high SES households are advantaged in this regard whilst boys from low SES families are not significantly disadvantaged and not at all if indentured in an apprenticeship or traineeship. This is not the case for girls from low SES households who show significant disadvantage compared with those from high SES families.

- VET students show a smoother transition to post-school destinations, including university, with boys showing better transitions than girls. Students from high SES households show proportionally better transitions that those from lower SES households, girls from low SES households being the most disadvantaged in this regard.
Given that around a quarter of students in NSW Catholic schools leave prior to the award of the HSC, and that students from low SES backgrounds are overly represented amongst early-leavers, the patterns and outcomes discussed above for senior school students in NSW Catholic schools actually underestimate the problem faced by students from low SES households and communities and by girls in particular. Both long standing and recent studies in fact, suggest that these patterns of disadvantage as described above are well established in primary school and even earlier.

Pierre Bourdieu (1972) recognised the correlation between the performance of the child in school from the earliest age and the socio-economic status of the parent(s) (Bourdieu 1972). He attributed the link to the ability of higher status parents to be able to provide a better preparation for engagement by way of opportunities in and beyond the home that higher income can provide. He also recognised that higher-income parents are most often themselves better educated and able to support the child’s learning to a higher degree. Bourdieu’s concept of cultural capital recognises that students from higher SES backgrounds live in a world of higher expectations with stronger educational support networks that produce an environment of advantage compared to those who do not live in such a world.

The Australian Early Development Index (AEDI) confirms the concept of early cultural capital and describes many children from low SES backgrounds as vulnerable.

“There are higher proportions of children living in the most socio-economically disadvantaged communities and in very remote areas of Australia who are developmentally vulnerable on each of the AEDI domains.”

(A Snap of Early Childhood Development in Australia, p.iv)

The disadvantage detected in the AEDI report for children from low SES backgrounds at the point of school entry stays with them throughout their schooling experience. This is confirmed by national and international testing of Australian students (Thomson et al. 2011).

The MySchool website (www.myschool.edu.au) displays the data confirming the link between the National Assessment Program – Literacy and Numeracy (NAPLAN) results, low SES and low literacy and numeracy skills at all levels of schooling. This correlation is also evident in the Program of International Student Assessment (PISA) and Trends in International Mathematics and Science Study (TIMSS) testing conducted by the OCED (Thomson et al. 2011).

95 A National testing of 97% of Australian children on entry to school (aged 5).
An analysis of Australian student performance data investigating levels of ‘learning gain’ (performance above expectation) between Years 9 (Numeracy and Literacy testing) and predicted Year 12 result as measured by the Tertiary Entrance Score showed that in two-thirds of cases the school made no significant difference⁹⁶ (Ainley 2003; Marks et al. 2001), yet noted that in a third of cases the school did make a difference. Research conducted by Marks et al. (2003) showed that ability at Year 9 had a greater latent effect than socio-economic background and that the strength of the socio-economic effect was relatively consistent across schools allowing for other factors. It may be that the major effects of SES have already left their mark in the earlier years of schooling and the ‘road back’ is travelled by few (Ainley 2003); this is particularly the case for children from low SES households in Australia (OECD 2009b). Marks et al. (2001) conclude that in ‘low SES schools’ it is more difficult to develop positive self-concepts of ability, more difficult to develop and maintain positive academic and school performance culture and it is less likely that high educational aspirations will be found in students or their parents. These are all critical factors in achieving high levels of educational attainment.

This research supports the view that there is an additional secondary effect of SES on educational attainment in the later years of schooling. Teese (2003) refers to ‘equity density’ as a means to collectively describe the many related and often interdependent factors that contribute to a lowering of student performance in low SES areas in Australia. According to this theory, the number of ‘inequity’ factors (variables) operating in a school community seems to have a multiplying negative effect on student outcome, and conversely where school can decrease or negate some or any of the factors, then gains can be made.

Coleman et al. (1966) and Jencks et al. (1972) concluded from research that there was little a school could do to counter the effects of low SES on student achievement. Yet other studies such as Verstegen and King (1998), Fullan (2006) Hargreaves (2010) make the claim that schools and quality teachers can make a difference, noting that successful initiatives in one setting will not necessarily be effective in another. Machtinger (2007) also supports the ‘horses for courses’ approach for addressing significant disadvantage resulting in poor education outcomes for youth. Although the influences may seem to be common, the skills in addressing them and the type of approach may need to vary significantly between communities to produce the desired outcome.

⁹⁶ Allowing for the fact that the student sample was relatively small and that students not completing Year 12 and receiving an ENTER score are removed from these studies.
Studies conducted in the United States seem to indicate that the collective effects of the socio-economic status\(^{97}\) of the school community can compensate for the possible effects of individual SES (Bryk & Raudenbush 1989). For example, a student from a low SES background attending school where the majority of the population is from higher SES families is more likely to perform better than in a population of students from like SES background in a school with like culture. The reverse is also true. Bryk and Raudenbush (1989) argue that students are affected by the academic and social climate of the school, independent of their individual background and the social climate of the school can be manipulated by skilful leaderships and high quality teaching. The school SES may be a consequence of the collective SES of its students. However, it would seem that school culture results from more than the collective of the individual students’ SES found at the school. From a study of Dutch secondary schools, Kreft (1993) concludes there are multiple and inter-related influences beyond SES not limited to but including: quality school structures, good leadership, self-concept of the group and individuals, parental involvement, order, discipline and frequent monitoring.

The commitment of NSW Catholic schools to low SES communities into the future is clear; as articulated by the Bishops of NSW and the ACT.

*“We invite all those connected with our Catholic schools to reflect on the implications of enrolment trends, especially the proportion of nominally-Catholic and other-than Catholic enrolments, and the need to ensure the participation of all social strata of our community, especially the poor.”*

*(Catholic schools at a Crossroads, Bishops of NSW and the ACT, 2007, p.11)*

Given the mission of the NSW Catholic schooling system is to ensure the participation of the poor (low SES communities) as it was for the original Catholic schools established almost two centuries ago, what can be done to ensure the best outcome for all?

It goes without saying that ‘participation of the poor’ in this context means ‘making a difference in the lives of the poor’. This is achieved by sound and inclusive education. Strong schools within a strong system are best positioned to meet the challenge of educating children with low cultural capital (Fullan 2001, 2006; Hargreaves 2010).

*“... the most important factor affecting student learning is the teacher. ... The immediate and clear implication of this finding is that seemingly more can be done to improve education by improving the effectiveness of teachers than by any other single factor.”*

*(Wright et al.1997, p.63)*

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\(^{97}\) In Australia this might relate to the ABS SES Score of the School
It is now clear that superiority in school leadership coupled with quality classroom practice can make a difference for all students (Hattie 2003, 2009; Fullan 2006) including the disadvantaged. However, this study has as its focus the patterns and trends in the senior years of schooling and will need to leave further discussion of specific school and classroom practice to others.

It is accepted that, based on current structures, students from low SES backgrounds are more likely to enter the post-compulsory senior years of schooling from an academic deficit situation. It must be stressed that low SES itself does not necessarily ‘produce’ low performance or ‘mandate’ low performance in the compulsory years but rather the challenges of rising above the influences fuelling low performance are beyond many schools and households located in low SES circumstance. This thesis supports the words of Dinham (2010) that SES is not about innate ability; social-biological determinism or potential but is about foundations/advantage, opportunity, support, role models and encouragement. As has been shown in the scatter plot analyses throughout the thesis, there are NSW Catholic senior students and schools (outliers) that are able to accommodate the influences generally found in low SES communities to achieve well above what may be called ‘expectation’. It is these students and schools that challenge others to make a difference.

Stephen Ball (2010) makes a case for the re-considering of the role of schools in education policy. He argues that the meritocratic nature of modern educational policy is commodifying students in an “ability” cluster of performance and as a consequence forcing parents (families) more and more to become “consumers’ of education and investors in cultural capital. If this is the education policy of the modern era, as well as there being less space for the influence of the school, the structures serve to worsen inequality.

“... if we want to understand and explain persistent educational inequalities and do something about them through policy, then increasingly, the school is the wrong place to look and the wrong place to reform – at least in isolation from other sorts of changes in other parts of society.”

(Ball 2010, p. 156)

Given the position of Ball (2010) what can be done in NSW Catholic senior schools to make an equity difference, especially for students from low socio-economic backgrounds? In answering this question the response will move from the general to the specific.

“... school improvement by itself has potential to make an enormous difference in the lives of children even if broader social change is slow in coming. The children who depend most on good schooling for academic growth are the least likely to receive it. If school improvement begins early in life and if sustained, the most disadvantaged children stand to benefit most. This reasoning suggests that increasing the amount and
the quality of schooling to which these children have access would reduce inequality in academic achievement.

(Raudenbush 2009, p.171)

Clearly the quality of the school and the school culture are critical influences on achievement for all students, nevertheless Raudenbush (2009) believes that school improvement has the greatest impact on the outcomes of the disadvantaged and therefore could be viewed as being more important for the potentially marginalised. Like all schools, NSW Catholic schools have a stated aim of continuous improvement. Most Catholic school plans describe the endeavour of improving student performance as measured by NAPLAN and the Higher School Certificate; a worthy and appropriate goal focused generally on classroom activity, teaching and learning. Where schools focus their improvement on inclusion and access for those less able to fully participate, the outcome can be an improved school culture and improved academic outcomes for those in greatest need (Lee et al. 2008), remembering that barriers to inclusion and access can be factors outside the control of the school. The focus of the media and community on reported outcomes (high stakes testing), such as those reported on the government’s MySchool website and the publication of the HSC results tend to pressure schools towards a focus on those aspects of teaching and learning which may influence the reported outcomes. This can potentially be at the expense of the bigger picture of student access and inclusion (Polesel et al. 2012), although it must be remembered that improved performance and broader access are of course not mutually exclusive.

Where schools give low priority to subjects which may not scale well for the calculation of the Tertiary Entrance Score, such as VET subjects, they also undervalue the students that enrol in this curriculum and the pathways that are important to them. The under-valuing is rarely an open declaration but becomes evident to all in the school community (teachers, parents and students) in the manner in which these subjects are offered, resourced, timetabled, funded, and celebrated (or not). Although not exclusively so, the subjects involving ‘applied learning’ approaches tend to fit into this second-rate curriculum mind-set. If Catholic schools are to take up the invitation of the Bishops to ensure the participation of all social strata of our community in NSW Catholic schools at the senior school level, this two-level curriculum perception needs to be addressed.

VET provision as part of the HSC in the post-compulsory years is a valuable contemporary approach to encourage student engagement, and therefore the quality of the retention (Teese & Polesel 2003). However, it may be ‘too little too late’ for many, particularly for students from low SES backgrounds, disengaged girls and for those not experiencing ‘academic success’ in
the compulsory years of secondary education and leave school before the opportunity to access VET in the senior years. At the school level, VET must be available without penalty or stigma - if schools wish to offer VET as an equity strategy to address disproportional access and achievement, remembering that equity can be measured by the level of access to achievement. (Keating 2008a).

Although the VET Curriculum was introduced into the NSW HSC in 1993, it still struggles for esteem in the broader senior school curriculum in the manner in which it is offered, packaged, valued, celebrated and accommodated within the senior school. As VET curriculum is most attractive to students from low SES households, schools must actively work against VET curriculum becoming a segregated social space in the senior curriculum (Teese & Polesel 2003). These outcomes may require a stronger and continued commitment, an inclination to address social need and a willingness on the part of schools to take more responsibility for the outcome of the educational experience provided – a commitment that goes beyond those students wishing to progress to university study. To establish this more inclusive system, NSW schools would need to move towards more flexible arrangements where students are encouraged to engage more (on their terms) and the mutual respect and value of the possible contribution of employers and training organisations outside the confines of the school. Schools may need to move to the point where they are ready to consider the integrated provision of education, training and employment services in partnerships with other schools, external providers and employers (Malley et al. 2001; Lamb & McKenzie 2001; Haukka et al. 2004; Richardson & Teese 2008). For example, a willingness to embrace vocational learning delivered within employment contracts by way of school-based traineeships and apprenticeships (Keating et al. 2001; Evans 2005) despite the inconvenience this may cause to school organisation and timetables.

Based on public statements from national employer and training bodies, VETiS may not be valued by all of ‘industry’98 (Skills Australia 2011). However, VET is valuable to a wide range of students (Teese & Walstab 2008) and as such, it must be offered as ‘equal’ alongside all other senior school curriculum. The role of the school in shaping aspirations and in preparing young people to approach their pathway (university, VET, workforce, other) with confidence, pride and self-esteem is unquestioned (Evans 2005); yet NSW structures and schools seem to perpetuate a hierarchy between and within student pathways. Where VET is offered as the alternative for the less able, NSW must acknowledge that this arrangement is a form of streaming and potentially even social selection.

98 The term ‘industry’ is used as a collective ‘catch all’ by the critics of VETiS. Without the provision of specifics, it is difficult to gauge the breadth or the severity of the perception or in fact the ‘lack of quality of VETiS’.
Too many young people leave NSW Catholic schools at the conclusion of the compulsory years putting themselves at risk (Chiswick et al. 2003). Legislating retention by raising the school leaving age is not the answer. Dealing with disengagement is the answer, remembering that disengagement occurs most often long before the point of leaving school. Curriculum (VET, non-HSC and others) offered within alternate pathways (particularly for but not exclusively for low achievers) (Polesel & Teese 2004) need to be considered and developed for implementation in NSW schools.

The concepts of good and poor retention need to be considered within each school (Teese 2002). Poor retention can have lifelong consequences for those enduring the situation (Jimerson et al. 2002). Schools know how to engage students yet when contemporary approaches fail, it must not be assumed that those showing signs of disengagement are doing so by choice. Where students show disengagement, schools need to pursue reasons. Where irrelevance of the curriculum (HSC) and its packaging are evident, consideration of alternatives may enable disengaged students to have a choice. This choice may well be outside the current constraints of the NSW Higher School Certificate and potentially some Catholic senior schools. Choice outside the HSC may be increasingly important where the government legislates for improved student retention by raising the school leaving age.

The unquestioned dominance of the HSC as the best or even preferred pathway for all students needs to be challenged, particularly for those displaying non-achievement and under-achievement in such a pathway within the current system. Too many students attempt a ‘university entry’ HSC when alternative pathways would produce better outcomes and longer-term prospects. In other words, it may be impossible for teachers to make up the ground between what the curriculum demands and the ability of the students (Teese & Polesel 2003) in order for them to progress to university. Schools need to be careful that they do not create this disjuncture by artificially streaming students into subjects beyond their ability (“for their own good”) in the hope they will manage. With alternative paths into university other than the ‘university entry’ HSC producing a Tertiary Entrance Score99 surely it is better for all that there be a healthy fit between student interest, ability and curriculum.

With the Review of Australian Higher Education (Bradley 2008) and subsequent government expectations of universities (Australian Government 2009) to achieve greater participation (20%) by entrants from low SES backgrounds by 2020, the time is right for schools to build relationships with universities to develop alternate and creative pathways that allow both

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99 The Tertiary Entrance Score has come under numerous names in recent years, from 2010 it has been known as the Australian Tertiary Admissions Ratio (ATAR).
engagement with learning at the senior school level and progression to university. Some release from the restrictions of the HSC and the TES may prove to be of benefit for all students not just those from low SES circumstances.

This research indicates a need for career and pathway counselling directly with students and via informing and encouraging parents and carers in the role. There is an established distinction between career education and counselling. The skills needed for sound counselling are a different set of skills to those needed to educate (OECD 2004). This research shows Career Advisers in NSW Catholic schools to be collectively ineffectual in supporting and counselling students in the selection of senior subjects and career pathway planning. As has been shown in other research in many countries, parents (in particular the mother) are the strongest influence on the pathway planning of adolescents (OECD 2004). The high number of students reporting that Career Advisers have no or little influence in NSW senior school students’ subject selection is surprising, especially where schools report a high proportion of students as having unrealistically high expectations of their ability to cope with higher academic HSC curriculum.

It is appropriate that parents are involved and have strong influence in support of their children in pathway planning. Given that schools have a role in this important function, schools may need to establish processes and opportunities whereby parents are provided with current and accurate information about such issues and the position of their individual child in this space. Noting that over 40 per cent of school staff in NSW Catholic schools indicated that career counselling is inadequate in their school, career and pathway counselling should not be an optional extra, yet a process that supports students and their families in this challenging task.

NSW Catholic Schools declare (via the ACER teacher survey, 2010) to have a strong interest in post-school transition and student progression. School might judge their interest by the extent to which they embrace and deliver destination and satisfaction surveys in the years following school graduation, adjust curriculum and schooling processes in response to these data, provide ex-student support services, welcome ex-students back into the school, enable ex-students access to career counselling and the level to which they advocate on their graduates’ behalf.

The research showed an ambiguity in the perception of teachers in NSW Catholic schools as to the schools’ role in preparing students to take their place in the workforce. School staff were divided as to whether this should be a function of NSW Catholic senior schools. The parents’ response to the survey shows that they did identify workplace preparation as an expectation of the school and, compared with other items, rated this function as lowest with 20 per cent of parents indicating levels of dissatisfaction. NSW Catholic schools need to clarify this function and establish means by which workforce preparation is adequately provided.
“There is a conceptual and very practical shift, from education as an intrinsically valuable, shared resource which the state owes to its citizens, to a consumer product or an investment for which individuals who reap the rewards of being educated (or their families) must take first responsibility. This conceptual shift changes fundamentally the relationship between citizen and state and what it means for a society to educate its citizens. It also changes the grounds upon which relative educational performances and educational success are achieved. It encourages the view that abstract effort or commitment or even a good school and good teachers are no longer adequate. The state and its schools can no longer be trusted on their own to deliver social advantage and social reproduction which effective, choosing parents expect”

(Ball 2010, p.160)

**Conclusion**

The link between low socio-economic status and school student performance is strong (Thomson et al. 2011; Masters et al. 2009; Sirin 2005; Marks 2006) and many of the factors which comprise low socio-economic status directly impact on educational achievement. Yet, Australia would seem to have communities where disadvantage, social exclusion and vulnerability are increasing (Hayes et al. 2008). These patterns are also evident in the analyses presented in this thesis. The strength of the effect of an individual’s low socio-economic status on achievement might be unresolved (Marks 2006). However it would seem that it is the collective weight of the indirect variables that determines the level of disadvantage (Teese 2003). Schools (and teachers) can choose to make a difference. It is not beyond a motivated school community located in an area of disadvantage to provide equity. The earlier in the life of the child that equity of access (the child experiences achievement) is established, the more likely a positive outcome will result (Lamb & Rice 2009). Although the relationship between socio-economic status and achievement is highest in countries where education is decentralised (e.g. USA) (Burstein et al. 1980), the road to change demands local decisions as well as centralised support (Fullan 2006; Coffey 2001). There are risks, yet if emphasis is also placed on teacher quality and leadership development and support, the risks are diminished. NSW Catholic senior schools are good schools, and particularly so for good students; whilst a number may need to take on the challenge of being good schools for all students. School leaders need to make sound decisions based on accurate information. It is hoped they will benefit from the intended outcomes of this research and support all students to achieve outstanding results beyond expectation (i.e. provide greater equity).

**NSW Catholic schools need to be more audacious in their approach to catering for the poor from their earliest encounter.**
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Appendices

Appendix one

The Index of Relative Socio-economic Disadvantage (IRSED) is an index created by the Australian Bureau of Statistics since 1986 to measure relative socio-economic disadvantage. It is one of a set of four indexes that comprise the Socio-economic Indexes for Areas (SEIFA). IRSED uses indicators of low socio-economic well-being to provide a general measure of disadvantage at a small area (CD) level.

IRSED focuses on disadvantage only. An area with a low IRSED score is taken to have a high proportion of disadvantaged people. This index is one of the four indexes that comprise the ABS’ Socio-economic Index For Areas (SEIFA). IRSED summarises a wide range of variables to assess the level of relative disadvantage in an area. They can be grouped into several broad categories:

- Place of usual residence (as opposed to the place where a person is counted on Census Night)
- Income variables
- Education variables
- Employment variables
- Occupation variables
- Education variables
- Housing variables
- Others indicators of relative advantage or disadvantage, including access to the internet, disability, Aboriginality, language background other than English, single parent families and access to a car.

Source:

Table A.1: Variable Frequency Analysis (Crosstab) – Phase three

Appendix 2

DEPENDENT VARIABLE

Phase One
Correlation Table

Student
Gender
Age
Study Year
Course
Enrollment
Course Rank
Mother Language
Nationality
Home Location
Parental Education
Family Income
CROSSES
GROSE
Disadvantage
SEPA
Occupation
SEPA
Education
School
School EES
Systemic
Early Leave
Destination
Attitudinal

Relationship of Variables to be analysed using frequency correlation in SPSS17
Appendix Three

Expectations and Destinations

Phone Survey Students and Leavers
STEM QUESTIONS FOR ALL RESPONDENTS

Q1. According to our records you were attending a NSW school in 2009. Are you still at school or have you left school?
   1. At same school  Go to Q3
   2. Left school and gone to another school  Go to Q3
   3. Have left School altogether

Q2. Did you complete Year 12?
   1. Yes
   2. No

Q3. This survey is about students’ destinations and career expectations. What kind of career or job do you expect to have when you are about 30 years old?

Q4. Would that work be self-employed or in your own business?
   a. Yes
   b. No

Q5. How much is your choice of career influenced by:
   1. Your mother?
   2. Your father?
   3. Particular teachers at your school?
   4. School career advisors?
   5. Other relatives?
   6. Friends?
   7. Other factors?

Note: Response set:
   1. Very Much
   2. A bit
   3. Not very much
   4. Not at all

Q6. What type of education do you think is needed for this type of work?

Note: Multiples accepted.

   1. University degree or higher
   2. TAFE certificate
   3. HSC (Year 12), or
   4. School Certificate
   5. (Can’t say)
6. Other (specify)

Q7 Now some questions about careers advice. At school did anyone ever show you how to

1. Develop a plan about your future study and work, including planning which school courses would help you reach your goals?
2. Write a resume or job application?
3. Prepare for a job interview?
4. Find out what kinds of jobs are suitable for you?

Note: Response set:

1. Yes
2. No

Q8 Have you done any of the following things arranged by your school to find out about future careers or types of work?

1. Discussed your career plans with a career advisor?
2. Read information about different types of study or work?
3. Been on an organised visit to a workplace?
4. Attended an information session about university study?
5. Attended an information session about TAFE study?
6. Done a work education course in Year 9 or 10
7. Done a work studies course in Year 11 or 12

Note: Response set:

1. Yes
2. No

Q9 How useful did you find the career guidance you received from your school?

a Very Satisfactory
b Satisfactory
c Not Satisfactory
d Not at all Satisfactory
e (Unsure/can’t say)

Q10. Did you receive an Australian Tertiary Admission Rank (ATAR)

a Yes
b No Go to Q14

Note: ATAR used to be called TER
Q11. What was your ATAR ranking?
___________________

Q12 Why did you leave school without completing Year 12?
___________________________________________________________________

Q13 Do you plan to complete the HSC sometime in the next few years?

1. Yes
2. No

Q14 Are you currently studying or training for a qualification?

1. Yes
2. No

Q15 Is that?

1. An Apprenticeship
2. A Traineeship
3. A University Course
4. A TAFE course
5. A course at a Private Registered Training Organisation
6. Other – Please Specify______________________________________

Q16 Have you deferred an offer of university place?

1. Yes
2. No

Q17 Do/did you think the courses offered at your school prepare/d you well for your future career path?

End of Stem Questions
SECTION A: FOR THOSE STILL AT SCHOOL

A1 What year-level are you in at school?
   1. Year 10
   2. Year 11
   3. Year 12
   4. Other

A2 Thinking about the courses you do at school, how much was your choice of courses influenced by?
   1. Your expected career at age 30?
   2. Maximising your ATAR score?
   3. Your likes and interests in particular subjects?
   4. Your parents?
   5. Career advisors at school?
   6. Your teachers?

Note, response set:
   a) Very much
   b) Somewhat
   c) Not much
   d) Not at all

A3 When do you expect to leave school?
   a. After completing Year 12? Go to A5
   b. During Year 12
   c. During Year 11
   d. Other

A4 What is the main reason you plan to leave school before finishing Year 12?

A5 Have you considered leaving school before completing Year 12?
   1. Yes
   2. No Go to A7.

A6 Why did you decide to stay on at school to complete Year 12?

Note: Response list.
   1. No jobs, apprenticeships or traineeships to go to
2. I’m now happier at school
3. Study or training that I want to do is available at school
4. Can’t because of the new school leaving age
5. I needed to complete Year 12 for my career
6. Other reason (Specify_______________________)
7. Don’t Know

A7 Do you plan to do any study or training after leaving school?
   1. Yes
   2. No   Go to E1
   3. Don’t Know   Go to E1

A8 What kind of study or training do you plan to do - for example, get an apprenticeship or traineeship, go to TAFE or university, or what?
   a) University
   b) TAFE
   c) An apprenticeship   Go to A10
   d) A traineeship   Go to A10
   e) Do some other course or training (SPECIFY_____________)
   f) Don’t Know   GO to E1

A9 What course?

__________________________________________

A10 In what area would your apprenticeship or training be in?

__________________________________________

A11. Will you obtain an Australian Tertiary Admission Rank (ATAR)
   a) Yes
   b) No

A12. What do you expect your ATAR will be?

__________________________________________

End of Section A
SECTION B: APPRENTICESHIPS AND TRAINEESHIPS

B1. In what area are you doing your apprenticeship?
   ____________________________________________Go to B3

B2. In what area are you doing your traineeship?
   ____________________________________________

B3 What is the level of the qualification you will get?
   a) Diploma or Advanced Diploma
   b) Certificate 4
   c) Certificate 3
   d) Certificate 2
   e) Certificate 1
   f) Certificate unspecified (Specify certificate_______)
   g) Other (Specify________)

B4 Did you do work placement as part of your VET-in-school subjects?
   a) Yes
   b) No Go to E1
   c) Didn’t do VET-in-school Go to E1

B7 Was your work placement while at school with your current employer?
   1. Yes
   2. No

B8 How did you find your apprenticeship/traineeship?
   a) Advertisement in the newspaper or on line
   b) Family or family friend offered apprenticeship/traineeship
   c) Your VET in school work placement employer took you on
   d) Through a group training company
   e) Through an Australian Apprenticeship Centre
   f) Through a State Training Service Centre
   g) Other

End of Section B
## SECTION C: UNIVERSITY AND TAFE

### C1 Which University?

Note: Pre-coded List

1. University of Sydney
2. University of NSW
3. Macquarie University
4. University of Western Sydney
5. University of Technology Sydney
6. University of Newcastle
7. University of Wollongong
8. University of New England
9. ACU / Australian Catholic University
10. Charles Sturt University
11. Southern Cross University
12. Australian National University
13. University of Canberra
14. A Victorian University
15. A QLD University
16. A SA University
17. A TAS University
18. A WA University
19. A ACT University)
20. A NT University
21. Other Higher Education Institution(Specify_______)

### C2 Which TAFE?

Note: Pre-coded List

1. Hunter Institute
2. Illawarra Institute
3. New England Institute
4. North Coast Institute
5. Northern Sydney Institute
6. Riverina Institute
7. South Western Sydney Institute
8. Sydney Institute
9. Western Institute
10. Western Sydney Institute
11. Other TAFE (Specify_______)

**C3** What is the qualification you are (would be) studying for?
1. Bachelor degree
2. Associate degree
3. Advanced diploma
4. Diploma
5. Certificate 4
6. Certificate 3
7. Certificate 2
8. Certificate 1
9. Certificate unspecified (Specify certificate_______)
10. Other (Specify____)

**C4** In what field or area?

**C5** Are you enrolled full-time or part-time?
1. Full-time
2. Part-time

*End of Section C*

*Note: Go to E1.*
SECTION D: NOT IN STUDY OR TRAINING

D1 I’m going to read a list of reasons why you may have chosen not to study. Could you please tell me which of these apply to YOU – yes or no.

1. There would have been too much financial pressure on your family
2. You wanted to start earning your own money
3. You would have had to travel too much
4. You would have had to move away
5. The courses you were interested in were not available locally
6. You never planned or intended to study
7. You didn’t enjoy school
8. You wanted to start your career right away

Note: Response set:
1. Yes
2. No
3. (Can’t say)
4. (Refused)

D2 And which of these would you say was the main reason you decided not to study?

Note: Pre-coded responses:
1. There would have been too much financial pressure on your family
2. You wanted to start earning your own money
3. You would have had to travel too much
4. You would have had to move away from home
5. The courses you were interested in were not available locally
6. You never planned or intended to study
7. You wanted to start your career right away
8. You didn’t enjoy school
9. (Can’t say)

D3 How likely is it that you start study or training in the next two years that would lead to a qualification? Is this…

1. Extremely likely
2. Somewhat likely
3. Not very likely
4. Not at all likely
5. (Can’t say)
6. (Refused)

End of Section D
SECTION E: WORK:

Aske[d of all including school students.

E1 Do you currently have a paid job?
   Notes:
   a Paid work includes apprenticeships, traineeships, self employment, family
      business or farm as long is paid
   b Causal, intermittent work is included.
   1. Yes
   2. No  Go to F1
   3. Waiting to start job  Go To E3

E2 Do you have more than one job?
   1. Yes
   2. No

E3 (I have some questions about the MAIN JOB you are working in, that is the job in
which you work the most hours.) What is your (main) job?

_____________________________________________________________________________

E4 About how many hours per week do you work on average in this job?
   1. Hours per week given (Specify_________)
   2. Can’t say (AVOID)

E5 Is your (main) job the type of job you would like as a career?
   1. Yes
   2. No
   3. Not sure

End of Section E
SECTION F: LOOKING FOR WORK

Note: IF E1=1 or 3 (currently has paid job) display text in brackets

F1 Are you currently looking for work (, including another job)?
   1. Yes
   2. No, not looking for work

F2 Have you been looking mainly for full-time work or part-time work?
   1. Full-time
   2. Part-time
   3. Either/both

F3 In what month and Year did you finish full-time education?
   ______ Month 1-12
   20___ Year 2008-2010

F4 Since that time how many months have you looking for work?
   ______ Number of Months

F5 Some people may have problems when looking for work. Have you personally had
any of these problems when looking for work?
A health problem or disability
   1. Problems with transport
   2. Not enough or appropriate skills or training
   3. Not enough or appropriate qualifications
   4. Not enough job experience
   5. Other problems looking for work (Specify)

Note: Response Frame:
   1. Yes
   2. No

End of Section F
SECTION G: NOT IN LABOUR FORCE, EDUCATION OR TRAINING

G1 What would you say is your current main activity?
Note: If R says ‘doing nothing’ record in other

1. Part-time Work
2. Unpaid Work
3. Home duties
4. Looking after children
5. Travel or holiday
6. Ill/unable to work
7. Part-time Study
8. Looking for work
9. Other (specify)

SECTION H: DEMOGRAPHICS

This section is designed to measure individual-level SES as well as parental expectations.

H1 What was the highest year of school your mother completed?
Notes: Use this guide if grade/year level not clear.

1. HSC, VCE etc
2. School Certificate
3. Only finished Junior Secondary school
4. Only finished primary school
5. If schooled in a foreign country & finished school is
6. If no schooling

_________Record Year level (Year 4 to 12)
Note: If “Don’t know” Go To H3

H2 Which of these post-school qualifications has she completed?

Notes: Multiple Choices Allowed

1. Apprenticeship or trade certificate;
2. Other TAFE certificate or diploma, or;
3. A (university) diploma
4. A university degree or (include post-grad degrees)
5. Some other qualification (specify ________________)
6. None of these

H3 What type of education or training does she want you to complete?

Notes: Multiple Choices Allowed

1. A higher (University) degree
2. University Degree
3. A TAFE/trade qualification
4. HSC
5. Business College
6. Some other qualification (specify _____________)
7. Hasn’t expressed an opinion

H4 What (is/was) your mother’s (step mother’s) (current/last) main occupation?

H5 Is/was that work her own business, the family business or does she work for an employer?
   a. Own Business
   b. Family Business
   c. Other Self-employed (Consultant etc.)
   d. Works for an Employer

H6 What type of job does your mother want you to have?

H7 What was the highest year of school your father completed?
   Notes: Guide if grade/year level not clear.
   a) HSC,
   b) School Certificate
   c) Only finished Junior Secondary school
   d) Only finished primary school
   e) If schooled in a foreign country & finished school is
   f) If no schooling
       __________Record Year level (Year 6 to 12)

H8 Which of these post-school qualifications has he completed?
   Notes: Multiple Choices Allowed
   1. Apprenticeship or trade certificate;
   2. Other TAFE certificate or Diploma
   3. A (university) diploma
   4. A university degree or (include post-grad degrees)
   5. Some other qualification (specify ________________)
   6. None of these
   7. Don't know

H9 What type of education or training does he want you to complete?
   Notes: Multiple Choices Allowed
   1. A higher (University) degree
   2. University Degree
3. A TAFE/trade qualification
4. HSC
5. Business College
6. Some other qualification (specify ________________)
7. Hasn’t expressed an opinion

H10 What (is/was) your father’s (step father’s) (current/last) main occupation?
Notes:
If unemployed, not in labour force, or retired emphasize ‘last main occupation’.

H11 Is/was that work his/her own business, the family business or does she/he work for an employer?
1. Own Business
2. Family Business
3. Other Self-employed (Consultant etc.)
4. Works for an Employer

H12 What type of job does your father want you to have?
Expectations and Destinations

Phone Survey Parents and Carers
SECTION H: PARENTS’ QUESTIONNAIRE

P1  Do you think it is/was the school’s job to prepare your child for:
   a) For life as an adult.
   b) For university study.
   c) For vocational training.
   d) To join the workforce.
   e) To become a responsible citizen.
   f) To have a successful career.

P2  Do you think this job also relies on others, including parents, family?
    Yes
    No

P3  How well do you feel that the school contributes/contributed to preparing your child:
   g) For life as an adult.
   h) For university study.
   i) For vocational training.
   j) To join the workforce.
   k) To become a responsible citizen.
   l) To have a successful career.

Note, response set:

   1. Well prepared
   2. Somewhat prepared
   3. Not prepared
   4. Not at all prepared

P4  How satisfied are you with the school your child attends/attended with:
   a) The subjects and courses offered in Years 11 and 12
   b) The advice given on subject choice
   c) Information on possible careers
   d) Information on university courses
   e) Information on vocational courses
   f) Career advice.
   g) The quality of teaching
   h) Maintaining discipline
   i) Feedback on how your child is going

Note, response set:
1. Not at all satisfied
2. Not satisfied
3. Fairly satisfied
4. Very satisfied

H1 What was the highest year of school you completed?

___________ Record Year level (Year 4 to 12)

Note: If “Don’t know” Go To H3

H2 Which of these post-school qualifications have you completed?

Notes: Multiple Choices Allowed
1. Apprenticeship or trade certificate;
2. Other TAFE certificate or diploma, or;
3. A (university) diploma
4. A university degree or (include post-grad degrees)
5. Some other qualification (specify ________________)
6. None of these

H3 What type of education or training do you want [FNAME, SNAME from list] to complete?

Notes: Multiple Choices Allowed
1. A higher (University) degree
2. University Degree
3. A TAFE/trade qualification
4. HSC
5. Business College
6. Some other qualification (specify ________________)
7. Hasn’t expressed an opinion

H4 What (is/was) your current/ or last main occupation?

Notes: If unemployed, not in labour force, or retired emphasize ‘last main occupation’.

H5 Is/was that work your own business, the family business or do you work for an employer?

1. Own Business
2. Family Business
3. Other Self-employed (Consultant etc.)
4. Works for an Employer

**H6** What type of job do you want for [FNAME, SNAME from list] to have?

**H7** What was the highest year of school [designated other parent] has completed?

_______ Record Year level (Year 6 to 12)

**H8** Which of these post-school qualifications has [designated other parent] completed?

Notes: Multiple Choices Allowed

1. Apprenticeship or trade certificate;
2. Other TAFE certificate or Diploma
3. A (university) diploma
4. A university degree or (include post-grad degrees)
5. Some other qualification (specify ________________)
6. None of these
7. Don't know

**H9** What type of education or training does [designated other parent] want [FNAME, SNAME from list] to complete?

Notes: Multiple Choices Allowed

1. A higher (University) degree
2. University Degree
3. A TAFE/trade qualification
4. HSC
5. Business College
6. Some other qualification (specify ________________)
7. Hasn’t expressed an opinion

**H10** What (is/was) [designated other parent] (current/last) main occupation?

Notes: If unemployed, not in labour force, or retired emphasize ‘last main occupation’.

**H11** Is/was that work his/her own business, the family business or does he/she work for an employer?

1. Own Business
2. Family Business
3. Other Self-employed (Consultant etc.)
4. Works for an Employer

**H12** What type of job does [designated other parent] want [FNAME, SNAME from list] to have?

**H13** What would you say is the total household income per year?

**H14** OK what $10,000 income band would your household income fall within?

1. Below 30K
2. 30-39K
3. 40-49K
4. 50-59K
5. 60-69K
6. 70-79K
7. 80-89K
8. 90-99K
9. 100-110K
10. ETC.

**H15** Would that be above or below $80,000 per year?

1. Above Go to H15A
2. Below Go to H16A

**H15A** Would that be above or below $120,000 per year?

1. Above
2. Below Go To H15D

**H15B** Would that be above or below $150,000 per year?

1. Above
2. Below Terminate

**H15C** Would that be above or below $180,000 per year?

1. Above Terminate
2. Below Terminate

**H15D** Would that be above or below $100,000 per year?

1. Above Terminate
2. Below Terminate

**H16A** Would that be above or below $60,000 per year?

1. Above Terminate
2. Below  Go to H16B

**H16B  Would that be above or below $30,000 per year?**
1. Above
2. Below  Terminate

**H16C  Would that be above or below $45,000 per year?**
1. Above  Terminate
2. Below  Terminate
Expectations and Destinations

Online Survey: Teachers
Note: An on-line survey

SECTION T:

T1 Do you currently teach courses in Year 11 and 12 or have other assigned responsibilities for senior secondary students?
8. Yes
9. No    Terminate

T2 In what subject areas do you teach?

T3 In your opinion how important are each of the following in your role as teacher?
   a) Help students master the subject you teach.
   b) Provide students with important life skills.
   c) Ensure that students that wish to go to university are successful.
   d) Maximize your students’ HSC performance.
   e) Prepare students for vocational training and a job.
   f) Help students become responsible young adults.

Note, response set:
   1. Very Important
   2. Somewhat Important
   3. Not Important
   4. Not at all Important

T4 How well prepared in general do you feel students at your school are:
   m) For life as an adult.
   n) To cope with university study.
   o) To cope with vocational training.
   p) To join the workforce.
   q) To become responsible citizens.
   r) To have successful careers.

Note, response set:
   1. Well prepared
   2. Somewhat prepared
   3. Not prepared
   4. Not at all prepared
Thinking of this year’s Year 12 students. What do you think are the approximate percentages that will next year: begin an apprenticeship or traineeship, go to university, do a TAFE course, be working, be unemployed and other? Please make sure the percentages add to 100.

______% Apprenticeship or Traineeship

______% University

______% TAFE (Other than Apprenticeship or Traineeship)

______% Working

______% Unemployed or Looking for Work

______% Other (Gap Year, etc.)

What about Year 12 students in the top achievement quartile in your school. What would the percentages be for that group? Again, please ensure the percentages add up to 100.

______% Apprenticeship or Traineeship

______% University

______% TAFE (Other than Apprenticeship or Traineeship)

______% Working

______% Unemployed or Looking for Work

______% Other (Gap Year, etc.)

What about Year 12 students in the bottom achievement quartile, again in your school. What would the percentages be for that group? Again, please ensure the percentages add up to 100.

______% Apprenticeship or Traineeship

______% University

______% TAFE (Other than Apprenticeship or Traineeship)

______% Working

______% Unemployed or Looking for Work

______% Other (Gap Year, etc.)

In your opinion what proportion of students from your school have problematic post-school pathways to further education, training or employment?

0. None
T9 A variety of reasons have been offered to explain why students have problematic post-school pathways. For your school please indicate the extent you believe the reason applies to students from your school with problematic post-school pathways.

1. These young people are often from low SES families.
2. These young people are often from broken families.
3. These young people are often from immigrant/refugee families.
4. These young people often have behavioural or attitudinal problems while at school.
5. Upper secondary school does not adequately cater for academically weaker students.
6. Upper secondary school does not adequately cater for students with a vocational orientation.
7. The school does not adequately prepare students for the world or work.
8. There is inadequate career counselling.
9. These students do not have basic life skills.
10. There are not enough jobs for school leavers who don’t go to university.
11. There are not enough TAFE courses for school leavers who don’t go to university.
12. Other

Note, response set:

1. Very true
2. Quite true
3. Not really true
4. Not at all true

T10 Please indicate how strongly you agree or disagree to the following statements about students at your school.

1. The subjects and courses that the school offers at the senior level cater well for students across a wide range of interests.
2. The subjects and courses that school offers at the senior level cater well for students across a wide range of abilities.
3. The school is not really concerned about what happens to students after they leave school.
4. Most students are well-served by the career advisor at this school.
5. The school does a good job preparing students for university.
6. The school does a good job preparing students for post-school vocational training.
7. Many students have unrealistically high expectations about their post-school pathways.
8. Many students have unrealistically low expectations for their post-school pathways.
9. There is generally a close fit between students’ interests and abilities and their expected post-school pathways.

Note, response set:

1. Strongly Agree
2. Agree
3. Disagree
4. Strongly Disagree
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