



Local Government Association

the impact of specialist and faith schools on performance

by Sandie Schagen, Deborah Davies, Peter Rudd and Ian Schagen
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INVESTOR IN PEOPLE



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CONTENTS

Acknowledgements	i
Executive summary	ii
1. INTRODUCTION: SPECIALIST AND FAITH SCHOOLS IN CONTEXT	1
1.1 Policy background	1
1.2 Research aims and methodology	5
1.3 Structure of the report	6
2. LITERATURE REVIEW	7
2.1 Specialist schools	8
2.2 Faith schools	14
3. VALUE-ADDED ANALYSIS OF PUPIL PERFORMANCE	19
3.1 The impact of specialist schools	19
3.2 The impact of faith schools	32
4. SUMMARY AND CONCLUSIONS	45
4.1 Specialist schools	45
4.2 Faith schools	46
4.3 Conclusions	47
REFERENCES	49

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EXECUTIVE SUMMARY

1. Introduction

Both specialist and faith schools can be seen as part of the present government's drive to raise standards and promote diversity. The White Paper, *Schools Achieving Success*, published in 2001, announced plans for new specialisms and a large increase in the number of specialist schools; it also advocated an expansion in the number of faith schools.

Specialist and faith schools tend to be popular with parents, and obtain good results in national league tables. Questions are sometimes asked as to whether this is due to their status as specialist/faith schools, or to other factors. In particular, it has been suggested that their success is due to the fact that they have a 'better' intake than other schools.

In order to explore this issue, it was felt necessary to undertake a value-added analysis which took prior attainment and other key factors into account. This research comprised two strands: a review of published literature and some primary analysis.

2. Literature review

Research into the impact of **specialist schools**, undertaken by Jesson, indicates that their GCSE results are much better (in value-added terms) than those of non-specialist schools, although aspects of his methodology have been criticised. There have also been attempts to show that specialist schools are improving (in terms of GCSE results) faster than non-specialist schools.

Qualitative research has attempted to identify the characteristics of successful specialist schools. Factors isolated tend to be similar to those identified as the characteristics of effective schools in general.

Although **faith schools** have existed for many years, there is little published evidence of their specific impact. Some research has focused on their positive ethos, but there have been few attempts to explore whether this leads to better performance results, in value-added terms. Findings from some broader studies suggest that church schools may have an advantage in terms of GCSE performance (total point score and English).

3. Value-added analysis of pupil performance

The project involved detailed analyses of the performance of specialist schools and faith schools at key stage 3 and GCSE. Matched datasets were used so that the progress of individual pupils could be assessed. Prior attainment and other key pupil- and school-level variables were taken into account. The statistical techniques used were linear regression and multilevel modelling. Outcome measures were:

- ◆ at GCSE level – total point score, average point score, and points obtained for mathematics, English and science
- ◆ at key stage 3 – English, mathematics and science levels, plus average level.

The results are summarised briefly below.

Specialist schools

Language and technology colleges performed slightly above the norm (represented by non-specialist schools) on all GCSE and key stage 3 outcomes. Sports colleges were above the norm on most GCSE outcomes, but at key stage 3 their performance was not significantly different from the norm. Arts colleges were above the norm for English, below for mathematics and science at both key stages.

Multilevel modelling was used to see whether specialist schools obtained above-average results from all their pupils, or whether they were particularly successful with one ability group. At GCSE level, specialist schools added slightly more value for high-ability pupils in terms of total point score, but not average point score; this suggests that high-ability pupils in specialist schools may be encouraged to take more GCSE subjects than their peers in non-specialist schools. At key stage 3, it seems that specialist schools may add marginally more value for high-ability pupils.

In order to explore whether the presence of specialist schools had an impact (positive or negative) on neighbouring schools, the performance of specialist schools, and non-specialist schools within the same LEAs, was compared with a norm represented by schools in LEAs where there were no specialist schools. Specialist schools obtained outcomes above the norm at both GCSE and key stage 3. At GCSE, 'competing' non-specialist schools obtained outcomes mainly at or below the norm, which could imply that specialist schools are succeeding to some extent at the expense of neighbouring non-specialist schools. However, at key stage 3, co-existing non-specialist schools performed as well as, or better than, schools in LEAs without specialist schools.

Faith schools

Four categories of faith school were considered: Roman Catholic, Church of England, 'other Christian' and Jewish (no data was available for schools belonging to other religious traditions). Faith schools presented a varied picture in terms of their performance results in different subjects and at different stages.

The five Jewish schools obtained the best overall results, scoring well above the norm (represented by non-religious schools) on all outcomes except key stage 3 science. Roman Catholic schools were mainly above the norm at GCSE, and mainly below at key stage 3. C of E schools were above the norm in terms of GCSE total point score, GCSE English and all key stage 3 outcomes except mathematics. The performance of 'other Christian' schools (another very small category) was variously above, below or equal to that of non-faith schools.

The performance of the three main categories (C of E, RC and non-faith) on different ability groups was examined. At GCSE, the impact on total point score of being in a church school was experienced more strongly in the higher ability range, but this was less marked for average point score; as with specialist schools, this may mean that church schools encourage their most able pupils to take additional GCSE subjects. The analysis confirmed that church schools outperform non-religious schools in English, at GCSE and (to a lesser extent) at key stage 3.

The performance on faith schools, 'competing' non-faith schools and LEAs without faith schools was compared. At GCSE, faith schools tended to perform above the norm, and co-existing non-faith schools below, but at key stage 3 the picture was unclear. There are in any case relatively few LEAs without faith schools, and they may not form a representative group.

4. Summary and conclusions

The value-added analyses confirmed the findings of some earlier research by indicating that some specialist schools and some faith schools perform above expectations on some outcomes. However, further research would be needed to identify the nature of the advantage and the reasons for it.

The most noteworthy findings were that:

- ◆ technology colleges and language colleges performed slightly above the norm on all of the outcomes investigated
- ◆ Jewish schools performed exceptionally well on all but one of the outcomes
- ◆ church schools performed consistently well in English.

It is important to note, however, that these positive associations are not necessarily causal. The analysis took into account prior attainment (the chief determinant of performance) and other important pupil- and school-level variables. However, there are relevant factors concerning intake (such as ethnicity, EAL, and parental support) which could not be included because data was not available. There are also questions about whether the enhanced performance of specialist schools is due at least in part to the additional funding which they receive. It would be worthwhile to undertake a further study, using qualitative and quantitative methods, to explore these issues further.

1. INTRODUCTION: SPECIALIST AND FAITH SCHOOLS IN CONTEXT

This report outlines the findings from a research project, funded by the Local Government Association (LGA), to explore the impact of faith and specialist schools on pupil performance. This chapter outlines the policy background, the research methodology and the structure of the report.

1.1 Policy Background

Specialist and faith schools have, it would seem, very different origins and aims. Yet both can be seen as part of the present government's drive to raise standards and promote diversity.

1.1.1 Specialist schools

The specialist schools programme was launched by the Department for Education (DfE) in September 1994, when a small number of grant-maintained and voluntary-aided schools began operating as technology colleges. In the following year, all maintained secondary schools in England were given the opportunity to apply for specialist school designation. Language colleges were introduced in 1996.

It was thought that the change of government in May 1997 might bring an end to the specialist schools programme, but instead it has been extended and diversified. Specialist schools for sports and the arts were introduced later in 1997. Since then, the number of specialist schools has significantly increased. Soon after the 2001 general election, the Department for Education and Skills (DfES, 2001) announced the designation of 79 new specialist schools, bringing the total to 684. Three months later, a new White Paper was published: *Schools Achieving Success* (GB. Parliament. HoC, 2001), which announced plans for at least 1,500 specialist schools by 2005. It also announced the introduction of new specialisms: science, engineering, business and enterprise, mathematics and computing.

The aims of the specialist schools programme have been refined since its introduction in 1994. Currently, they are defined as follows:

- ◆ to extend the range of opportunities available to pupils which best meet their needs and interests
- ◆ to raise standards of teaching and learning in the specialist subjects

- ◆ to raise standards of achievement for all their pupils of all abilities
- ◆ to develop within the schools characteristics which signal their changed identity and which reflect the schools' aims
- ◆ to benefit other schools and the wider community in the area
- ◆ to strengthen the links between schools and private and charitable sponsors.

It can be seen that these aims reflect three key elements of current education policy:

- ◆ **raising standards** – improving teaching and learning, and thus the level of pupil performance
- ◆ **promoting diversity** – enabling pupils and their parents to choose the kind of school that best suits their individual needs
- ◆ **partnership with the private sector** – specialist schools have to obtain private sector sponsorship, and are encouraged to develop close ongoing links with their sponsors.

Schools applying for specialist status have to

- ◆ raise private sponsorship to the value of £50,000 (£100,000 until September 2000)
- ◆ demonstrate at least reasonable standards, and preferably evidence of sustained attainment by pupils in the relevant specialist area
- ◆ present a four-year development plan, with targets and performance indicators against which success can be judged.

Schools which succeed in meeting these criteria are awarded specialist status for an initial period of four years, and can apply for redesignation at three-year intervals thereafter. They are given a one-off capital grant of £100,000 by the DfES, and additional annual funding based on pupil numbers.

Under the Schools Standards and Framework Act 1998, specialist schools are allowed to select up to ten per cent of their pupils by aptitude in the specialist subject, although the evidence suggests that relatively few take advantage of this provision (OFSTED, 2001).

Since 1997, specialist schools have been expected to share their resources, good practice and expertise with neighbouring schools and with the local community (DfEE, 1998). OFSTED (2001) reported that this was '*the weakest element of the specialist schools' work*', although sports colleges seemed to have more success (see also OFSTED and Youth Sport Trust, 2000).

Performance data for specialist schools is often quoted (for example, in *Schools Achieving Success*) as evidence for the success of the programme,

and justification for its future development. However, there have been criticisms of the programme on a number of grounds:

- ◆ Some of the performance data quoted has been challenged, and indeed the Education Secretary had to admit recently that the difference between specialist and other secondary schools in rates of improvement was not as great as had been originally claimed (Henry and Hutchins, 2001).
- ◆ Even if specialist schools do outperform others, it is sometimes suggested that this could be due to the increased funding they receive, and that any school could do better if given additional resources. There is a related concern that the specialist school programme could result in a two-tier system of secondary education; union leaders have argued that *'The extra resources should be available to the many and not just the select few'* (Learner, 2001).
- ◆ Increased choice may only be available to families in areas where there is a range of secondary schools within easy travelling distance; others may find that the only local specialist school (or, indeed, the only local secondary school) has a specialism which is not of interest to them (Smithers, 2001).
- ◆ The Equal Opportunities Commission has argued that the planned large increase in the number of specialist schools may result in more pupils taking stereotypical male and female subjects (Matthews, 2001).

Performance data quoted in relation to specialist schools will be examined later in this report. The government has rejected the charge of creating a two-tier system of education, arguing that the specialist schools programme will ultimately benefit all schools, not just those with specialist status.

1.1.2 Faith schools

While specialist schools are relatively new, the Church has played a major role in education longer than the state itself. There are now almost 7,000 church schools within the maintained education sector; they account for more than a third of primary schools, and a lower though still substantial proportion of secondary schools. Most have voluntary-aided status, which means that all running costs are met by the state, together with 85 per cent of capital expenditure.

The vast majority of voluntary-aided schools are either Roman Catholic (RC) or Church of England (C of E), with just a few schools linked to the Methodist Church or other Christian traditions. As English society has become increasingly multicultural, schools belonging to other faiths (Jewish, Muslim, Sikh) have been accorded voluntary-aided status, although as yet these are few in number.

Church schools tend to be highly regarded and popular with parents, even those who are not themselves active adherents of the Christian faith. This is no doubt due in part to their ethos, a perception that church schools promote clear values and good behaviour. However, it is also true that church schools tend to attain good academic results, and often appear at the top of LEA league tables.

The C of E is represented strongly in the primary sector, but has relatively few secondary schools. Acknowledging this, a report for the Church by Lord Dearing (Church Schools Review Group, 2001) recommended the opening of another 100 C of E secondary schools. The White Paper, *Schools Achieving Success* (GB. Parliament. HoC, 2001), went further and advocated an expansion in the numbers of faith schools generally.

It is easy to understand why, since faith schools – although very different from specialist schools – could be said to illustrate the same three elements of government policy identified above: raising attainment (faith schools tend to achieve good academic results), promoting diversity (allowing parents to choose a religious education if they so wish) and partnership with the ‘private sector’ (in this case, the religious bodies that control faith schools).

However, despite the popularity of church schools, the planned expansion of faith schools has been heavily criticised. The White Paper was published in the same month that terrorist attacks resulted in the deaths of over 3,000 people in New York; the attacks are thought to be the work of Muslim extremists, and this – together with the race riots which took place in the north of England in summer 2000 – has led some to question the wisdom of segregated education. In a recent MORI poll of nearly 2,000 people, only 25 per cent favoured expansion, while over 40 per cent were opposed (Passmore and Barnard, 2001).

It is argued that integrated secular-based education is more likely to promote mutual understanding and toleration. Others, however, note that Muslims and other faiths should have the same opportunities available to Christians (see e.g. Mansell and Barnard, 2001). It is also noted that even secular schools can be effectively segregated, since families from ethnic/faith minorities tend to live in close proximity, and send their children to the local school (Hewitt, 2001).

The government’s response has been to continue with plans for the expansion of faith schools, but insist that they must be prepared to link with other schools and to accept pupils from other faiths or none.

1.2 Research Aims and Methodology

It has been noted above that the case for both specialist and faith schools rests in part – though not exclusively – on their high standards of attainment. But we have also noted that some of the claims made have been challenged. The data which is often quoted may not tell the whole story: for example, church schools may be strongly represented at the top of league tables, but is this because they are particularly good schools, or does it merely reflect the high quality of their intake?

The National Foundation for Educational Research (NFER) was therefore commissioned by the LGA to undertake a full review of the available evidence in order to assess the impact of specialist and faith schools on performance. The research project comprised two distinct though related activities:

- ◆ a critical review of published literature on this topic, assessing the findings of research already undertaken
- ◆ primary analysis of national datasets, in order to explore the effectiveness of specialist and faith schools in value-added terms.

Literature review

It was agreed that the review would include research-based publications on specialist schools and faith schools. A range of databases was searched including the British Education Index, the British Official Publications Current Awareness Service (BOPCAS), BLAISE (British Library Automated Information Service) and the NFER's own publications database. Searches were conducted using the following keywords:

- ◆ Specialist schools
- ◆ Faith schools
- ◆ Religious schools
- ◆ Church schools

The internet and education press were also scanned for information relating to the current debate about specialist and faith schools.

Statistical analysis

We suspected (and the literature search confirmed) that there was little published evidence relating directly to the impact of faith and/or specialist schools. It was therefore planned that we would undertake our own value-added analysis of performance data designed for this purpose.

National value-added datasets (NVADs) now provide matched data at pupil level, including details of gender and age as well as the results obtained in national tests.¹ They do not, however, contain data prior to 1997, so it is not yet possible to measure the value-added impact of the whole of secondary schooling. It was therefore necessary to conduct separate analyses of the two secondary key stages, using data from two different cohorts: key stage 2 1997 to key stage 3 2000, and key stage 3 1998 to GCSE 2000.

The main statistical techniques employed were linear regression and multilevel modelling.² At both key stages, we aimed to discover

- ◆ how the various types of specialist schools performed, in value-added terms, relative to non-specialist schools
- ◆ whether the impact of attendance at a specialist school was the same throughout the ability range
- ◆ whether the existence of specialist schools had a negative impact on the other schools within an LEA.

The same analyses were conducted with reference to faith schools. As far as the authors are aware, this is the first time that analyses of this kind, based on the national datasets of pupil performance, have been carried out in relation to such schools.

1.3 Structure of the Report

Following this introduction, Chapter 2 summarises and assesses the significance of existing research relating to specialist and faith schools. This links to Chapter 3, which provides evidence from the new 'value-added' statistical investigations into the relative performance of different types of schools, carried out by the NFER especially for this study.

The review concludes in Chapter 4 by summarising the findings of the study and by highlighting issues which merit consideration and further investigation.

¹ Information about receipt of free school meals (FSM) was added from NFER's Schools Database.

² Multilevel modelling is a recent development of linear regression which takes account of data which is grouped into similar clusters at different levels. For example, individual pupils are grouped into year groups or cohorts, and those cohorts are grouped within schools. There may be more in common between pupils within the same cohort than with other cohorts, and there may be elements of similarity between different cohorts in the same school. Multilevel modelling allows us to take account of this hierarchical structure of the data and produce more accurate predictions, as well as estimates of the differences between pupils, between cohorts, and between schools. (Multilevel modelling is also known as hierarchical linear modelling.)

2. LITERATURE REVIEW

In order to assess the impact of school type on performance, we need to ask, first, are the specialist schools (or faith schools) achieving better results than other schools? If the answer is yes, we would also want to know why – to analyse the factors that contribute to their success.

In this section, we review attempts to discover the answer to these two questions, for specialist schools and then for faith schools. At one level, the first question can be answered quite simply. Data published in national league tables can be used to show that specialist schools, for example, attain better GCSE results than other comprehensives. However, this in itself proves nothing: grammar schools achieve the best results of all, but that reflects the fact that they select more able pupils. In order to make a just assessment of the impact of any school type, it is necessary to undertake a 'value-added' analysis, which allows for prior attainment and other key factors known to influence performance outcomes.

Saunders (1998) has identified best practice in calculating value added as follows:

- ◆ data should be collected **at individual pupil level on a large and representative sample**
- ◆ outcome measures should reflect **all levels of pupil performance**
- ◆ there should be **prior attainment measure(s) plus background information for each pupil**
- ◆ **school context factors** should be included
- ◆ **multilevel modelling**³ should be used to analyse the data
- ◆ there should be **rigorous quality assurance and quality control procedures**.

Because the data needed for such analysis has only recently become available, there have as yet been few attempts to explore the impact of specialist or faith schools by means of analysis which would satisfy these criteria. NFER's own attempt to do so is reported in the following chapter. Meanwhile, we considered the evidence from published studies.

³ Multilevel modelling is the only statistical technique capable of doing justice to the hierarchical nature of the data, i.e. the fact that we need to investigate the effects on performance of the characteristics of schools, of classes and of pupils *simultaneously* and to assess their relative importance in accounting for differences in performance.

2.1 Specialist Schools

Research into the effectiveness of specialist schools is still in its infancy. Some studies, notably by Professor David Jesson, have attempted to quantify the success of specialist schools; others have adopted a qualitative approach in order to explore in greater depth what practice in specialist schools 'looks like'. The findings of this research are discussed below.

2.1.1 Value-added analysis: Jesson

Prior to the present report, the main evidence for the impact of specialist schools was the work of Jesson (Jesson with Taylor, 2000). His conclusions (broadly, that specialist schools achieved better results than other comprehensives) featured prominently in the White Paper announcing the further development of the specialist schools programme.

Jesson conducted a school-level value-added analysis of 1999 GCSE results, comparing the performance of 321 specialist comprehensive schools with that of 2,667 'maintained comprehensive' schools. He found that, taking their (slightly above average) key stage 3 results into account, the predicted outcomes for specialist schools would be 46.5 per cent of pupils with five or more A*–C grades at GCSE, and an average total point score of 37. The actual results were much better than this: 52 per cent and 40.8 points respectively. These findings show that specialist schools were adding considerably more value than other comprehensives.

A similar analysis of GCSE 2000 data has been published recently (Jesson with Taylor, 2001). The findings were broadly the same, although the difference between predicted and actual GCSE point scores was less than in 1999 (41.3 actual compared with 39.7 predicted).

For the first time, Jesson also undertook an analysis using key stage 2 data as a baseline. The analysis was restricted to schools for which relevant data was available, and the only outcome explored was percentage of pupils gaining five or more A*–C grades. But again, the results were very positive, showing that the specialist schools included had an actual mean of 54.7 per cent, compared with a predicted 49.3.

Although the Jesson findings appear compelling, it should be noted that his research has some significant limitations. It fails to meet Saunders' criteria for best practice (see above) on a number of counts:

- ◆ the analysis is school-level rather than pupil-level; hence, for example, there is allowance for attendance at single-sex schools, but none for being a boy or a girl within a mixed school
- ◆ there is no allowance for school context factors such as social deprivation, as measured by the percentage of FSM pupils; even after controlling for prior attainment, this can have a significant impact on performance
- ◆ multilevel modelling was not used to analyse the data.

In addition, most of Jesson's work is based on key stage 4, thus ignoring the first three years of secondary schooling. And one of his main outcome measures (percentage of pupils gaining five or more A*-C grades) is unstable, as it can be strongly affected by a change in the performance of just a few pupils (see Schagen, 2000).

For reasons such as these, Jesson's work has been criticised by Goldstein (2001), who discusses in particular the dangers of relying on school-level rather than pupil-level data. He concludes: *'In short, the "evidence" for the "proven success" of specialist schools does not stand up to close examination.'*

2.1.2 Raising standards

It is often claimed that specialist schools are improving faster than other schools. Tooley and Howes (1999) note that the first group of specialist schools designated in 1994 were at that stage not much above average in terms of the percentage of pupils achieving five or more A*-C grades at GCSE (41 per cent compared with 39 per cent for all comprehensive schools); however, by 1998 the gap was much wider (53 per cent and 43 per cent respectively). Tooley and Howes note further that even those specialist schools situated in deprived areas are improving (by the same criterion) twice as fast as comprehensive schools nationally.

West *et al.* (2000) argue similarly that:

... specialist schools have, on average, seen their results improve more than other schools, using two widely used indicators – the percentage of the age cohort gaining five or more GCSE grades at A-C and the percentage gaining one or more GCSEs at grades A*-G.*

In order to reach this conclusion, West *et al.* calculated the increase in percentage of pupils gaining five plus A*-C grades from the year of designation as a specialist school until 1998. They then divided the increase by the number of years elapsed to obtain an average annual level of improvement. This was calculated as 1.11 percentage points in specialist schools, against 0.36 percentage points in non-specialist schools. (We should note, however, that there is considerable variation between groups of schools. Those designated specialist schools in 1997 improved by only 0.27 percentage points in the following year, less than the average for non-specialist schools.)

More recent evidence of rapid improvement in performance results has been quoted by Jesson (Jesson with Taylor, 2001) and by OFSTED (2001). Jesson notes that:

Between 1997 and 2000 all non-selective specialist schools improved their 5+ A-C GCSE results from 47% to 53% – up 13%. This compares with an improvement from 39% to 43% for other comprehensive and modern schools over the same period – up 10%.*

The OFSTED analysis uses mean GCSE total point score as an outcome measure, and looks at trends over the period 1995–2000 for different types of specialist school. The national rate of increase is calculated as 0.84, whereas for specialist schools it varies from 0.99 (technology colleges) to 1.37 (arts colleges).

The problem with this type of trend analysis is that we are comparing the performance of different cohorts, who may differ in terms of prior attainment and other factors. Moreover, with the exception of the OFSTED analysis reported in the last paragraph, such calculations tend to use an unstable outcome measure (see comments above). However, the fact that the pattern of more rapid improvement is sustained over time indicates a definite trend which is not due simply to random fluctuation in the ability of different cohorts. We therefore need to ask **why** specialist schools are improving more rapidly than other schools.

In an OFSTED (2001) survey, nearly three-quarters of the 46 specialist schools visited said they could recruit good staff more easily than was previously the case because of their specialist designation. It might be thought that, as a result, standards of teaching would be higher in specialist schools, but the same OFSTED report indicated that this was apparently not the case. In terms of the percentage of good or very good teaching **in the specialist subjects**, the figures for specialist schools were '*broadly in line with the national picture*' (although language colleges did particularly well at key stage 3).

It could also be the case, as Gillmon (2000) acknowledges, that the increased funding given to specialist schools (enabling them to provide better resources and facilities) could contribute to the improvement in examination results.⁴

There is also the question of intake. If the school's status and reputation improves, there may be greater demand for places, particularly perhaps from parents with an awareness of educational issues and a commitment to their children's schooling. This could in turn result in an increase in the average ability of new entrants (cf. Yeomans *et al.*, 2000). Goldstein (2001) notes that inter-school transfers could have a similar effect. A full value-added analysis, taking account of pupil characteristics, is needed in order to show that the improvement in raw results is due to the school and not to changes in the profile of the intake.

2.1.3 Characteristics of high-performing specialist schools

It is clear that numbers alone cannot explain why certain schools are achieving particularly good or dramatically improved results. There have been attempts to undertake qualitative research in order to identify the

⁴ As noted in Section 1.1.1, it is sometimes argued that any school could improve its performance if provided with additional resources.

features of particularly successful specialist schools. Tooley and Howes (1999) visited ten specialist schools which had made good progress (in value-added terms) during the previous year. From interviews with headteachers, senior managers, governors and students, they '*sought to distil elements of good practice*' and thus identify '*the seven habits of highly effective schools*'. These were:

- ◆ focus on school ethos
- ◆ strong leadership and management
- ◆ focus on students' learning
- ◆ innovation to promote school goals
- ◆ quality control
- ◆ organisations and structures in empathy with ethos
- ◆ parental and community links.

In her guide to good practice in raising standards of achievement in technology colleges, Gillmon (2000) lists a number of key characteristics identified by specialist schools as having had a significant impact on the quality of teaching and learning. In addition to monitoring, target setting and meeting individual pupil needs, there are several points not mentioned by Tooley and Howes, such as an emphasis on improving literacy levels, longer school days and opportunities for learning on Saturdays and in the summer holidays. Gillmon does not explain, however, the evidence on which her list is based.

None of the characteristics of successful specialist schools identified by researchers relate directly to specialist school status. Are they therefore different from the characteristics which define any effective school (specialist or non-specialist)? There is considerable overlap between Tooley and Howes' seven habits and the 11 key characteristics of effective schools identified by Sammons *et al.* (1998).

Schagen and Weston (1998) related the judgement scales on the OFSTED database to Sammons *et al.*'s key characteristics. They then looked at the relationships between these factors and school-level examination results. They concluded that '*the most significant correlates with GCSE performance appear to be a learning environment, high expectations, and concentration on teaching*'. Factor analysis undertaken as a separate exercise indicated that GCSE outcomes were also significantly related to ethos and behaviour, SEN provision, and leadership and management, two of which feature in Tooley and Howes' list of seven habits.

The OFSTED (2001) survey, discussed above, also considered the features of high attainment in specialist subjects, and concluded that these were '*broadly the same as in non-specialist schools where pupils do well in the subjects concerned*'. They went on to say, however, that:

... there is also much common ground with other schools in the approaches used to raise attainment. What marks out the more successful specialist schools is often the combination of the approaches used and the consistency and intensity with which they are applied.

2.1.4 Survey of specialist schools

West *et al.* (2000) conducted an independent evaluation for the DfES, which was designed to examine the impact of the specialist schools programme. Questionnaires were sent to 238 specialist schools that were designated as such in September 1997. Questionnaires were sent to headteachers, heads of specialism, and chairs of governors. Although only 70 schools returned all three questionnaires, 82 per cent returned at least one. Questions covered a wide range of issues, including staffing, admissions policies and expenditure. Under the heading 'Curriculum and time allocation', a large majority of respondents made reference to:

- ◆ innovative teaching strategies
- ◆ initiatives within the specialist area attempting to address underachievement
- ◆ new specialist subjects or courses.

In addition, nearly half mentioned that the school had developed programmes related to accelerated learning, and over a third reported that the overall number of teaching hours had increased (cf. Gillmon, above). These factors were not directly related to improvement at the individual school level, but their frequency of occurrence suggests that they may contribute to the overall raising of achievement.

In research designed to complement the West *et al.* survey, Yeomans *et al.* (2000) conducted 140 interviews with a wide range of personnel and students⁵ in 12 case-study schools. The latter were chosen (by the then DfEE) to be broadly representative of all specialist schools, in contrast with the approach of Tooley and Howes, who deliberately selected high-performing schools. Yeomans *et al.* noted that, while in eight of their 12 case-study schools the percentage of students gaining five or more A*-C GCSE grades had improved, in the other four it had declined.

Yeomans *et al.* explored the issues investigated by West *et al.* in greater depth. Their case studies comprised eight technology colleges, two language colleges, one sports college and one arts college. They discovered some interesting differences: for example, technology colleges tended to invest in equipment and resources (widening access to ICT for all subject areas) while the sports and arts colleges placed more emphasis on staffing, using

⁵ Interviews lasting between 45 and 60 minutes were conducted with headteachers, the specialist school director/coordinator, heads of specialist departments, teachers in specialist departments, teachers in non-specialist departments, pupils, sponsors, governors and personnel from other institutions such as partner schools.

their funding to create additional non-teaching posts. Both strategies, however, facilitated the adoption of new teaching and learning approaches.

The technology colleges' investment in computers '*revealed enormous faith in the power of ICT to help meet the TC targets and more broadly to raise educational achievements*'. Moreover, in several schools, ICT programmes had been used to enhance provision for pupils with special needs. Yeomans *et al.* note that technology colleges tended to focus on curriculum **enhancement** through improving teaching and learning and raising standards, while schools with other specialisms had greater scope for curriculum **innovation**. However, while Yeomans *et al.* identify some interesting differences in the practices of their case-study schools, they do not attempt to relate these to performance outcomes.

2.1.5 Summary of evidence

We have cited evidence which suggests that specialist schools are raising levels of achievement (in terms of the percentage of pupils gaining five or more A*-C GCSE grades) faster than non-specialist schools. The reasons for this are not yet clear: it could be due (for example) to the change in status, to the extra funding or to changes in the profile of the school's intake. In order to eliminate the latter possibility, it is necessary to undertake a value-added analysis of performance results. Jesson has done precisely that, and the results show that specialist schools are adding more value than other schools. However, the analysis is school-level rather than pupil-level, and although it takes prior attainment into account, it does not allow for other factors such as receipt of free school meals.

Other researchers have investigated the practice of specialist schools, to provide an insight into how they are organised and how they operate. Some have selected schools demonstrated (by prior analysis of their value-added performance results) to be particularly successful. They have attempted to identify common factors which could be assumed to contribute to the schools' positive outcomes. Although there are variations in the characteristics identified by different researchers, there is also considerable overlap. The question remains, however, to what extent these characteristics differ from factors which define high-performing non-specialist schools. Furthermore, in identifying 'good practice' it also becomes necessary to consider issues around transferability. Tooley and Howes ask:

Are any of these success stories replicable? Can other principals and teachers, or other governing bodies, faced with similar problems learn from the lessons of these schools and raise standards in their schools too? Or is everything dependent upon the charisma and energy of key individuals?

2.2 Faith Schools

As noted in Section 1.1.2, faith schools tend to attain good academic results, and often appear at the top of LEA league tables. The crucial question is whether these good results mean that faith schools are particularly effective, or whether they merely reflect a more select, privileged intake.⁶ Two preliminary points need to be made.

First, the range of faith schools within the maintained sector now includes Muslim, Sikh and Jewish schools. The government therefore refers to 'faith schools' in order to embrace both Christian and non-Christian traditions. We have no wish to discriminate, but as the latter schools are both few in number and also relatively new to the state system, there is as yet little evidence of their effectiveness. This section will therefore focus primarily on church schools.

Second, although it seems reasonable to talk about 'church schools' in general, the character of Roman Catholic and Church of England schools is very different. Roman Catholic schools cater largely for the Roman Catholic families; they may accept some non-Catholic pupils, but the majority will have links with the Catholic Church. Accordingly, their intake tends to represent a community which is widespread geographically, but is socially cohesive. By contrast, Church of England schools function much more as local community schools, with perhaps just a small number of places reserved for pupils from further afield who request a specifically Christian education. We should not therefore necessarily expect both kinds of church school to have similar outcomes.

2.2.1 The impact of church schools: early evidence

Although church schools have co-existed with state schools for many years, there appears to be little published evidence of their specific impact. Because we were unable to find much recent research evidence, we included material from an earlier date, relating to primary as well as secondary schools; even so, there was little to review.

More than 20 years ago, Rutter *et al.* (1979) published a study of 'secondary schools and their effects on children'. It was based on just 12 schools, four of which were voluntary aided (in this case, either Church of England or Roman Catholic). The authors noted that four was:

... far too few for any adequate examination of this distinction in status ... The voluntary-aided schools tended to have slightly better outcomes than the other schools, but the groups overlapped considerably in outcome, and the differences fell well short of statistical significance.

⁶ A recent analysis of Welsh data (NAfW, 2001) showed that church schools obtained better GCSE results than non-faith schools; however, when varying FSM levels were taken into account, the difference was not statistically significant.

In their study of junior schools, Mortimore *et al.* (1988) found that voluntary schools⁷ were particularly effective in a number of areas, though not in oracy. They felt that this was explained partly at least because of '*a broad pattern of differences in teaching strategies*' between county and voluntary schools. However, they also noted that '*our measures of pupil background ... are necessarily crude and may underestimate the difference between pupils attending each type of school*'. This is an important factor which needs to be borne in mind when considering the findings from all research (including our own) related to faith schools.

2.2.2 Analyses of London GCSE results

A paper entitled 'The academic performance of Catholic schools' (Morris, 1994) proved less helpful than the title suggested. Morris notes correctly that Catholic schools perform well in terms of 'raw' outcomes, e.g. placing in league tables, percentage of pupils obtaining five or more A*-C grades at GCSE. However, much of the other evidence cited by Morris comes from the USA (where most Catholic schools are private schools) and is therefore not entirely relevant to the English context.

Morris's only evidence for the 'value added' by Catholic schools in England was said to have

... emerged as a by-product of research by Nuttall (1990), who looked at differences in examination performance of secondary schools in the former ILEA. He found, among other things, that after taking background factors into account, "the examination performance scores of students attending Roman Catholic schools is higher than those of students attending county schools".

We have not yet managed to obtain a copy of the Nuttall paper mentioned, so we do not know which background factors were taken into account. However, an analysis of 1991 GCSE examination results by Nuttall and colleagues (Thomas *et al.*, 1993) apparently used similar methods and variables. Thomas *et al.* used multilevel modelling to take account of pupil- and school-level factors. Pupil-level factors included information provided by LEAs about ethnicity and entitlement to free school meals. As a baseline, the researchers used '*the VR [verbal reasoning] band assigned to each student as part of the secondary school transfer procedure ... or a comparable prior attainment measure*'.

Thomas *et al.* note that some of their data was missing, or imperfect, so '*the results for the school factors should be treated with extra caution*'. One of the findings subject to this caveat is that '*pupils in voluntary schools, excluding Church of England schools, perform significantly better than those in county schools*'. We should note first the exception: Church of England schools do not (apparently) gain better value-added results than county schools.

⁷ Voluntary schools are mainly but not exclusively faith schools.

Which schools, then, do perform significantly better than county schools? The fact that most voluntary-aided schools are either Church of England or Roman Catholic suggests that Thomas *et al.* are referring to Catholic schools, which would be consistent with the earlier findings of Nuttall reported by Morris (see above). But this raises the inevitable question: if the authors meant that Catholic schools were performing well, why did they not simply say so? Their category perhaps included other schools which might confuse the picture. This, together with the caveat already noted, means that it would be unwise to interpret the Thomas *et al.* finding as convincing evidence of enhanced pupil performance in RC schools.

From 1994, the value-added analysis of London GCSE results was carried out by NFER under the title Examination Results in Context (ERIC). Both the 1994 and 1995 analyses (Kendall, 1996, 1997) revealed no significant difference between the adjusted scores of pupils in denominational or non-denominational schools. However, the analysis of 1996 results (Kendall and Ainsworth, 1997) found that Church of England schools were significantly ahead in terms of English GCSE score, while Roman Catholic schools were significantly ahead in terms of total point score.

During the 1990s, NFER offered a value-added analysis service (known as Quantitative Analysis for Self-Evaluation, or QUASE) to secondary schools in England and Wales. A technical report (Schagen, 1996) details findings for the 93 schools which subscribed to the service in 1993–5. The analysis showed that pupils in voluntary schools achieved a total GCSE score approximately three points higher than expected, when all other factors were taken into account. They also performed significantly better than pupils in other schools in terms of English score and number of A–C grades. These findings are in line with the 1996 ERIC results. The fact that voluntary schools perform better in terms of **total** point score, but not **average** point score, may suggest that their pupils take an additional GCSE subject (perhaps compulsory RE).

2.2.3 The effectiveness of RC schools: Morris

In a later paper, Morris (1998) used OFSTED inspection reports to assess the effectiveness of Catholic schools. Schools inspected during 1993–5 represented 28 per cent of all maintained Catholic schools and 41 per cent of all others. This is a large but (as the author acknowledges) not a truly random sample. However, he provides data to show that the Catholic schools, while located in '*slightly better socio-economic environments*', nevertheless served pupil populations similar to those of the non-Catholic schools. (This is in terms of eligibility for free school meals; it does not of course take prior attainment into account.)

Morris makes the point that 75 per cent of the Catholic schools are found in Groups 1 and 2 (classified as providing the highest standards of education) compared with 66 per cent of 'other' schools. Further, according to OFSTED

ratings, Catholic schools scored higher than other schools (on average) in terms of standards, efficiency (though the difference here was slight), ethos and overall quality of education. The difference for ethos is particularly wide, and more detailed analysis shows that Catholic schools obtained better ratings on a range of individual items which relate to ethos and pupils' personal qualities.

The data assembled by Morris is impressive, and provides evidence to support the view that Catholic schools have a positive ethos and sense of community. However, it does not necessarily follow that all of the positive characteristics identified are due entirely to the school. Morris used FSM data to show that the children attending Catholic schools broadly reflect the national population in socio-economic terms, but there are other factors which he was not able to measure, for example the level of parental support and attitude towards education. It is not unreasonable to suppose that these may be higher among Catholic families, who may also be more likely to share the values of the Church.

Distinguishing cause and effect in these circumstances is not easy. To put it simply: if the standard of behaviour in Catholic schools is high, is this because the schools have a positive impact, or because Catholic schools tend to attract pupils from the 'right' kind of family background? Given close links between home, school and church, it would be very difficult if not impossible to separate out the influence of each.

2.2.4 The performance of church schools: Marks

Just as this report was being written, Marks (2001) published the results of an analysis which aimed to compare standards in Church of England, Roman Catholic and LEA (non-denominational) schools. His main thesis is that, while all schools are falling behind 'expected' standards, church schools are less far behind than others. Thus he is effectively claiming – albeit in a rather negative way – that church schools are superior in terms of progress and attainment. It is the progress which interests us here, since attainment could merely reflect intake; however, Marks' measure of progress is calculated by estimating pupils' reading, English or mathematics 'age' at the end of each key stage, and then subtracting one from the other in order to derive a measure of progress in terms of years.

Although we are not in a position to prove that Marks' conclusions are wrong, it would be unwise to place too much reliance on his analysis, for a number of reasons. First, it appears that Marks' formula for transforming levels into ages leads him to underestimate the progress between key stages. He concludes, for example, that children make only 2.5–2.8 years' progress in mathematics over the four years of key stage 2. Assuming (as Marks does) that one level represents two years' progress, this is equivalent to an increase of only 1.25–1.4 levels between key stage 1 and key stage 2. Yet data from 1998 (on which Marks' analysis is based) shows that the average

level at key stage 1 was 2.18 and at key stage 2, 3.71; this means that the actual increase was 1.53 levels.⁸

Second, Marks relates **reading** at key stage 1 to **English** at key stage 2. Since English comprises reading **and** writing, and scores for writing tend to be lower than scores for reading, this will have the effect of reducing real progress gained either in reading or in English as a whole.

Third, Marks' analysis is not a true value-added analysis, since he is in each case comparing two different cohorts, rather than calculating the progress made by individual pupils. Fourth, and following on from this, his attempt to compare the 'progress' made in church and LEA schools ignores the fact that children do not necessarily remain in one of these categories throughout their school life. This raises particular issues, as Marks himself admits, with reference to the period between key stage 2 and key stage 3. Almost all pupils will change schools in that period, and some may well change from C of E primary schools to LEA secondary schools, or LEA primary schools to C of E secondary schools (although the number of available places in C of E schools makes the former more likely). There is thus an obvious danger in estimating 'progress' as the difference between results achieved by church primary schools at key stage 2 and church secondary schools at key stage 3.

2.2.5 Summary of evidence

In summary, it is often claimed that faith schools have a distinctive and positive ethos, and we have found some evidence to support this view, with specific reference to Roman Catholic schools. From our perspective, the crucial question is whether this positive ethos enables pupils to make faster progress and faith schools to obtain better results (in value-added terms) than other schools. There have been very few attempts to address this question directly, and the studies we have consulted do not provide a clear and reliable answer. There are some suggestions that church schools do perform better than expected in certain areas, but the differences are usually small and often not statistically significant. Moreover, the studies concerned are based on limited data and/or analytical methods. To our knowledge, there have as yet been no published attempts to conduct a full-scale value-added analysis of national data, using multilevel modelling to isolate the impact of faith (not just church) schools. We have therefore carried out just such an analysis, and the results are reported in Section 3.2.

⁸ The basic formula (explained in Marks, 1998) is $\text{age} = 3 + 2 \times \text{level}$. However, it appears that he equates level 2C to age 7, which means that pupils attaining levels 2B and 2A would be considered to be ahead of their age, and would thus make less than the expected four years of progress if they reached the expected level 4 at age 11. We suspect also that Marks may have given children who missed the test a score of 0, which would have a greater negative impact on key stage 2 averages than on key stage 1.

3. VALUE-ADDED ANALYSIS OF PUPIL PERFORMANCE

Both specialist and faith schools often occupy high positions in league tables, but it is sometimes suggested that their good results are due mainly to the quality of their intake. A true assessment requires a value-added analysis which takes prior attainment and other background variables into account.

National value-added datasets (NVADs), which link performance at one key stage to the next for all or most pupils in a cohort, are a valuable resource for investigating the relationships between school-level factors and the progress of individual pupils. They contain matched test results from a large majority of English schools. Since they do not include test results prior to 1997, it is not yet possible to carry out a single value-added analysis which covers the whole period of compulsory secondary schooling (key stage 2 to GCSE). Our study was therefore based on data from two separate cohorts: key stage 2 1997 to key stage 3 2000, and key stage 3 1998 to GCSE 2000.

3.1 The Impact of Specialist Schools

For the purpose of the analysis, only schools which attained specialist status in 1999 or earlier were defined as specialist schools, since specialist status acquired later could not have had an impact on the 2000 results.

3.1.1 Key stage 3 to GCSE

The NVAD for key stage 3 1998 to GCSE 2000 contains matched data from almost all of the secondary schools in England. Table 3.1 below shows the percentage of schools and pupils belonging to the various specialisms.

Table 3.1 Pupils and schools with different specialisms (as at 1999)

Specialism	Number of schools	Percentage of schools	Number of pupils	Percentage of pupils
None	2599	83.2	387166	80.3
Arts	56	1.8	10229	2.1
Language	99	3.2	18185	3.8
Sports	65	2.1	11966	2.5
Technology	305	9.8	54853	11.4
Total	3124		482399	

Within the cohort that took GCSEs in 2000, approximately one in five pupils were in specialist schools. The most common specialism was technology, accounting for well over half of the schools and pupils.

Five different outcomes were investigated:

- ◆ total GCSE point score⁹
- ◆ average GCSE point score
- ◆ mathematics point score
- ◆ English language point score
- ◆ double science point score.

The following background variables were taken into account in all of the analyses:

pupil-level

- ◆ sex (girl or boy)
- ◆ age (in years and months)
- ◆ prior attainment (average level attained at key stage 3)

school-level

- ◆ type of specialism (if any)
- ◆ percentage of pupils in the school eligible for free school meals (FSM)
- ◆ type of LEA (metropolitan or non-metropolitan).

Overall impact of specialist schools

The first analysis undertaken was a simple multiple regression, designed to facilitate comparison of performance in specialist and non-specialist schools, while controlling for all other background variables, most importantly prior attainment. Table 3.2 shows the significant coefficients of specialist schools' impact at GCSE. These figures represent the number of GCSE points gained (or lost) by pupils in specialist schools above (or below) the norm represented by non-specialist schools. (A dash indicates that results in that category were not significantly¹⁰ different from the norm.)

As Table 3.2 demonstrates, the performance of pupils in specialist arts colleges was slightly below those in non-specialist schools in mathematics and science. Total scores for pupils in sports colleges were not significantly different from those in non-specialist schools. In other cases, specialist schools performed better than non-specialist schools, but the differences

⁹ Points were derived from subject grades in the standard manner, i.e. A*=8, A=7, B=6 ... G=1.

¹⁰ The term is used throughout this chapter in that statistical sense, i.e. a significant difference is one which has a very low probability of arising by chance.

were usually very slight. The most successful schools appear to be the language colleges, since they have the highest coefficient for all outcomes except science, for which they are a very close second to the technology colleges. Even so, the average point score of pupils in language colleges is only one tenth of a point higher than that of pupils in non-specialist schools.

Table 3.2 The impact of different types of specialist schools at GCSE

Outcome	Coefficients (GCSE score difference) relative to non-specialist schools			
	Arts	Language	Sports	Technology
GCSE total score	1.148	1.536	—	1.130
GCSE average score	0.023	0.108	0.050	0.082
GCSE mathematics	-0.037	0.059	0.024	0.058
GCSE English	0.075	0.089	0.040	0.030
GCSE science	-0.025	0.069	0.029	0.073

Our initial analysis therefore confirms Jesson's conclusion that specialist schools outperform non-specialist schools at GCSE, although we would argue that the difference is not quite as great as he suggests (see Section 2.1.1).¹¹ This raises two further questions:

- ◆ do specialist schools obtain slightly above-average results from all their pupils, or are they particularly successful with one group (e.g. the more or less able)?
- ◆ is this slight improvement gained at the expense of the neighbouring non-specialist schools?

Further analyses were undertaken in order to answer these questions.

Impact on different ability groups

To answer the first question, a multilevel analysis was carried out for each of the five outcome measures; the models incorporated all of the background variables listed above. The results are shown in Figures 3.1–3.5. The lines illustrate the 'expected' GCSE performance for pupils across the range of prior attainment, taking average values for other background factors. In each graph, the dotted line represents the performance of pupils in specialist schools, and the unbroken line that of other pupils. It is clear that there is very little difference between the two; indeed, for individual subjects, the difference between specialist and non-specialist schools is barely perceptible.

¹¹ One difference between our analysis and Jesson's is that he has excluded selective schools; we have not. However, the proportion of selective schools in the 'specialist' and 'non-specialist' categories is approximately equal, so this should not unduly influence our findings.

Figure 3.1 Total GCSE score v. average KS3 level: specialist and non-specialist schools

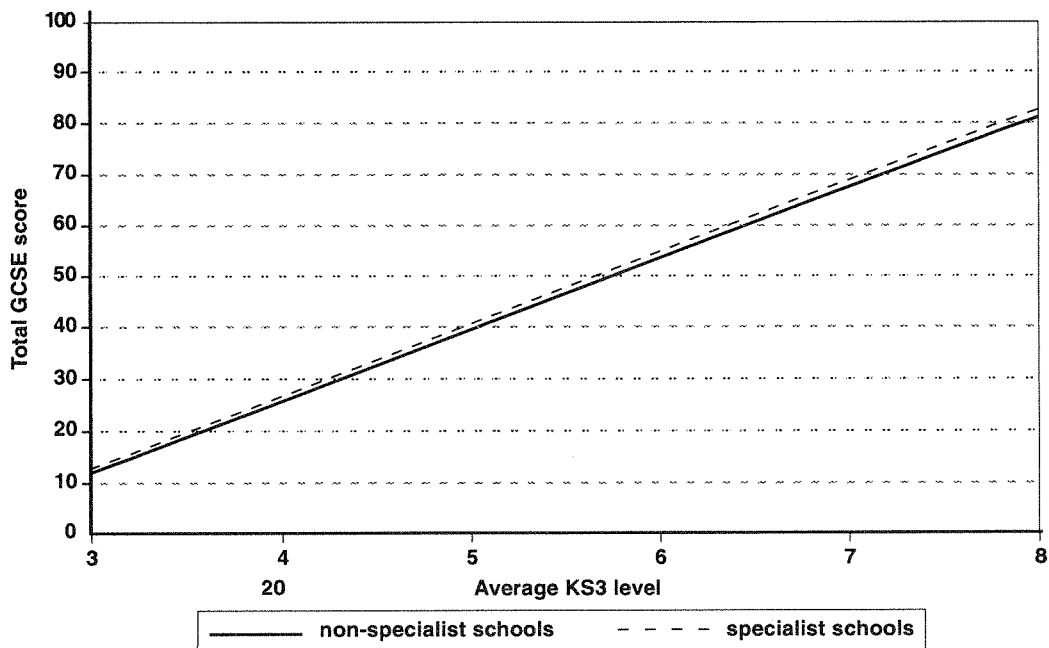


Figure 3.2 Average GCSE score v. average KS3 level: specialist and non-specialist schools

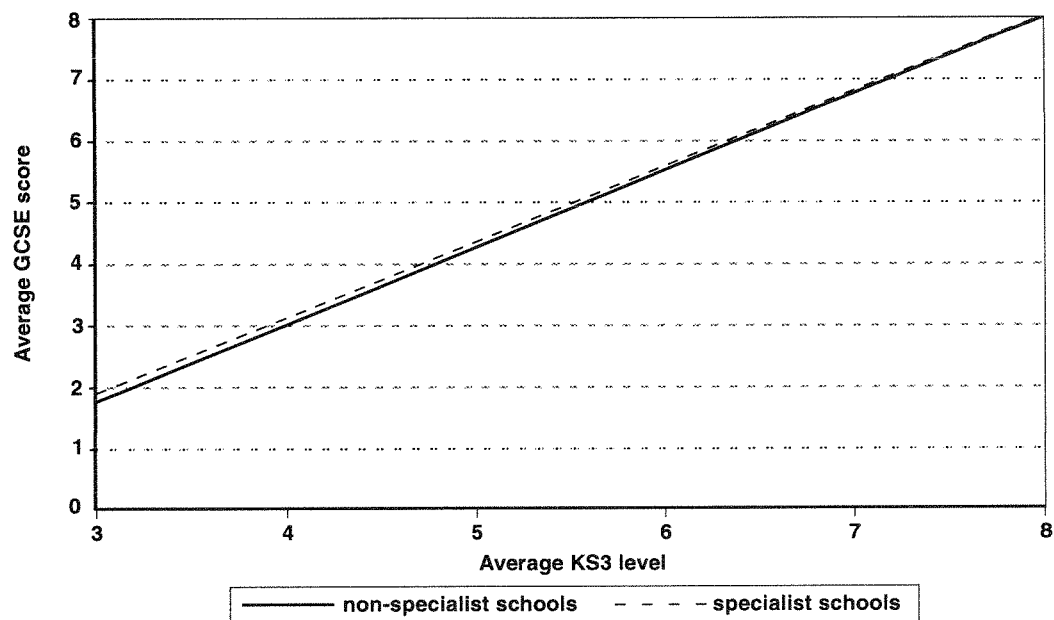


Figure 3.3 Mathematics GCSE score v. average KS3 level: specialist and non-specialist schools

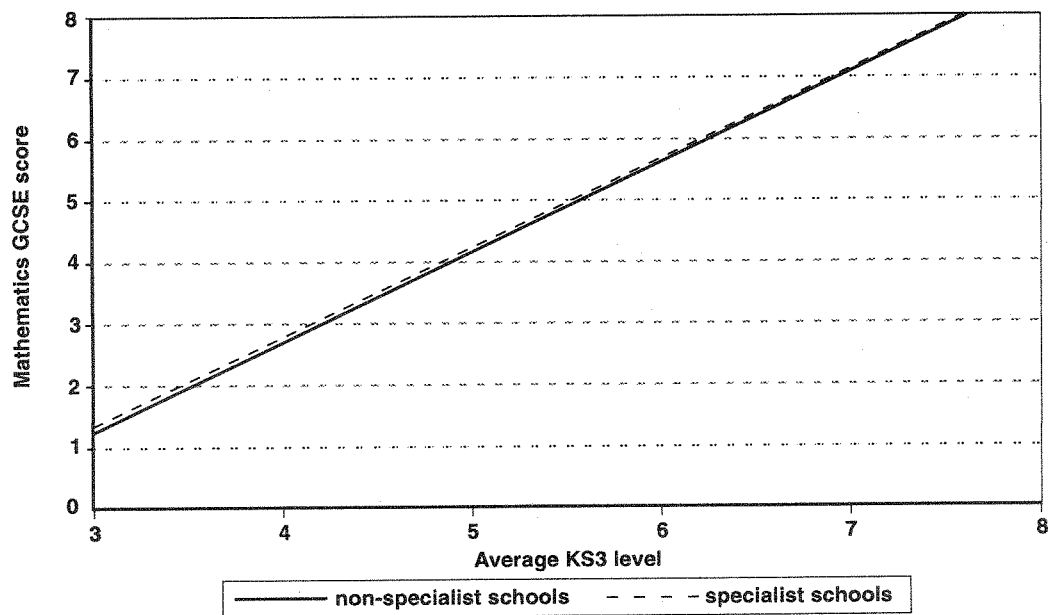


Figure 3.4 English GCSE score v. average KS3 level: specialist and non-specialist schools

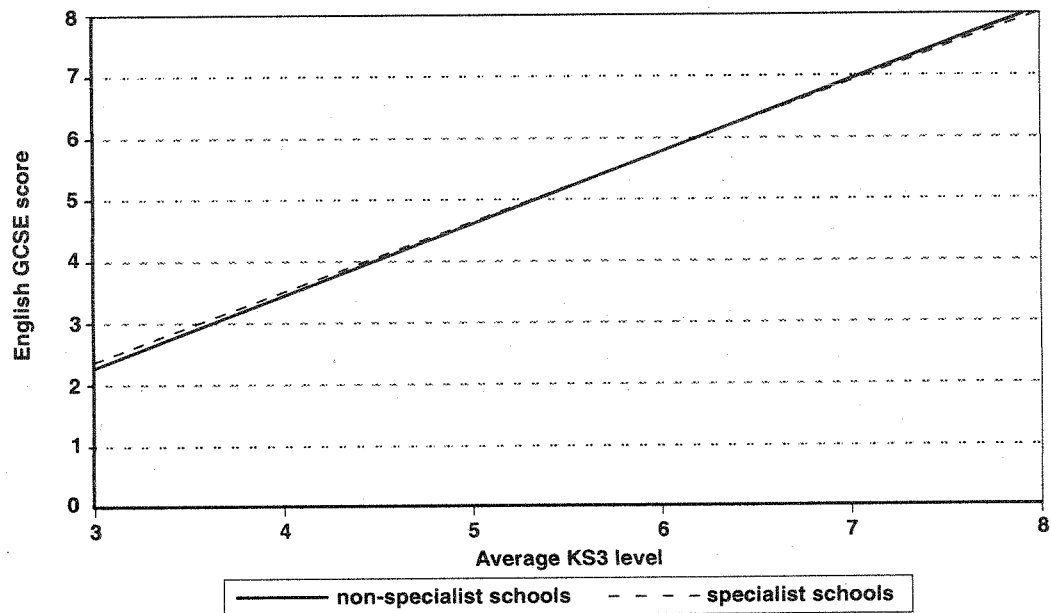
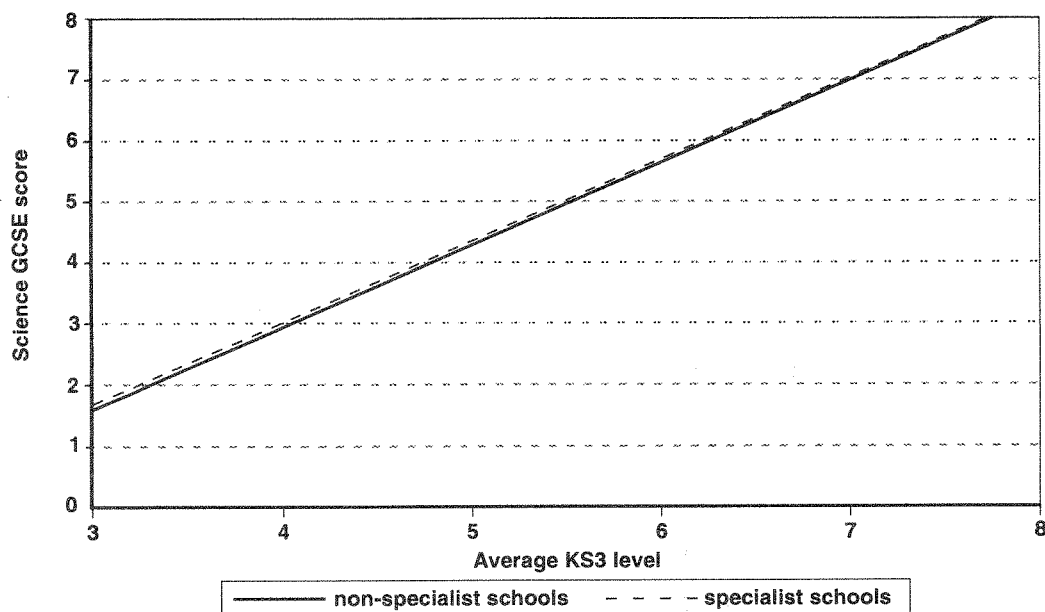


Figure 3.5 Science GCSE score v. average KS3 level: specialist and non-specialist schools

In terms of total GCSE point scores, the gap widens slightly towards the top, suggesting that specialist schools add slightly more value for high-ability pupils; however, in terms of average point score the opposite appears to be the case. It may be, therefore, that high-ability pupils in specialist schools are encouraged to take more GCSE exams than their peers in non-specialist schools.¹²

We must stress again, however, that the differences are very small. In general, it appears that the slight overall advantage conferred by specialist schools is experienced throughout the ability range, and not focused on one particular group.

Impact of specialist schools on performance, by LEA

Specialist schools are allowed to select a certain proportion of their pupils by aptitude. The selection process may include interviews with pupils and their parents. It has therefore been suggested that (compared with non-specialist schools) they have a particularly favourable intake – not necessarily the more able pupils, but those from supportive families with an interest in education. If this is the case, then non-specialist schools may be correspondingly disadvantaged by having fewer such pupils.

Our value-added analyses control for ability, but cannot allow for additional factors such as parental support. In order therefore to explore our second

¹² Table 3.2 tends to confirm this hypothesis, if we compare the advantage of specialist schools in terms of total score and average score. Taking technology colleges (the largest category) as an example, the total score coefficient is almost 14 times the average score coefficient. Unless pupils are taking 14 GCSEs, which seems highly unlikely, this difference can only be explained if pupils in technology colleges are taking more subjects on average than those in non-specialist schools.

question (is the advantage of specialist schools gained at the expense of neighbouring non-specialist schools?), we considered performance results in an LEA context, taking into account the proportion of pupils in specialist schools.

For this analysis, schools were divided into five categories:

- ◆ specialist schools in LEAs where up to 20 per cent of the pupils were in specialist schools
- ◆ non-specialist schools in that type of LEA
- ◆ specialist schools in LEAs where over 20 per cent of the pupils were in specialist schools
- ◆ non-specialist schools in that type of LEA
- ◆ schools in LEAs which had no specialist schools.

A regression analysis was carried out, taking schools in the 28 LEAs with no specialist schools as the norm. Table 3.3 lists the significant coefficients of the other school types. The figures given in the table indicate the number of extra GCSE points gained (or lost) by pupils in specialist schools and those in non-specialist schools 'competing' with specialist schools.

Table 3.3 Specialist and non-specialist schools in context at GCSE

Outcome	Coefficients (GCSE score difference) relative to LEAs without specialist schools			
	Non-specialist (low specialism LEAs)	Non-specialist (high specialism)	Specialist (low specialism)	Specialist (high specialism)
GCSE total score	-0.208	-0.127	1.000	0.826
GCSE average score	—	-0.010	0.085	0.060
GCSE mathematics	—	-0.038	0.042	0.027
GCSE English	-0.026	-0.013	0.031	0.024
GCSE science	0.020	—	0.067	0.074

Specialist schools (whether in a 'high specialism' or 'low specialism' area) have positive coefficients for all five outcomes, i.e. they obtain significantly better results than schools in areas without specialist schools (though we should note again that the differences are very slight: only one additional point in terms of total score). However, non-specialist schools in areas where specialist schools exist tend to perform slightly below the norm at GCSE. This could be interpreted as confirming the hypothesis that specialist schools succeed to some extent at the expense of neighbouring non-specialist schools.

To explore this issue further, and to evaluate the overall balance between school types in the same LEA, the analysis was rerun combining specialist and non-specialist schools within the three types of LEA: high specialism,

low specialism and no specialism. Taking the last as the default, the coefficients (differences in GCSE scores) for high- and low-specialism LEAs are shown in Table 3.4.

Table 3.4 The impact of specialist schools on GCSE results, by LEA

Outcome	Coefficients (GCSE score difference) relative to LEAs without specialist schools	
	Low specialism	High specialism
GCSE total score	–	0.168
GCSE average score	0.015	0.012
GCSE mathematics	–	-0.024
GCSE English	-0.017	–
GCSE science	0.029	0.024

Compared with other LEAs, those which have some specialist schools obtain marginally better results for science and average score, but for English and mathematics the difference is either negative or non-significant. Total scores are above the norm in LEAs with high specialism but not those with low specialism. We must note once again that the difference is very slight (one-sixth of a point on total score). Further, this is the only outcome for which high-specialism LEAs obtain better results than low-specialism LEAs (except for English, where low-specialism LEAs are below the norm). This evidence does not therefore support the suggestion that an increase in the number of specialist schools would necessarily yield improvements in national GCSE results.

3.1.2 Key stage 2 to key stage 3

Value-added analyses (including those used as evidence of high achievement in specialist schools) are usually based on GCSE performance, using key stage 3 attainment as a baseline. However, secondary schools cover key stage 3 as well as key stage 4, and we wished to examine what impact (if any) specialist schools have in the early years of secondary education.

The analyses reported above were therefore repeated for key stages 2–3. The NVAD for key stage 2 1997 to key stage 3 2000 was used,¹³ and the background variables were the same as for the key stage 3–GCSE analysis (except that prior attainment was the average level for key stage 2). In this case, there were four outcome variables:

- ◆ average key stage 3 level
- ◆ mathematics level
- ◆ English level
- ◆ science level.

¹³ This has more gaps than the key stages 3–4 database, but still includes a large majority of English schools.

Overall impact of specialist schools

Again, a multiple regression analysis was undertaken, in order to compare key stage 3 performance in specialist and non-specialist schools. Table 3.5 shows the significant coefficients of specialist schools' impact at key stage 3. The figures given in the table indicate the additional levels gained by pupils in specialist schools above the norm represented by the non-specialist schools.

Table 3.5 The impact of different types of specialist schools at KS3

Outcome	Coefficients (KS3 level difference) relative to non-specialist schools			
	Arts	Language	Sports	Technology
KS3 average level	-0.017	0.060	—	0.043
KS3 mathematics	-0.043	0.061	—	0.045
KS3 English	0.043	0.061	—	0.038
KS3 science	-0.049	0.059	—	0.046

At key stage 3, the performance of pupils in arts colleges was again below those in non-specialist schools in mathematics and science (and therefore also in terms of average key stage 3 level). The performance of pupils in sports colleges was not significantly different from those in non-specialist schools in any of the three core subjects.

Technology and language colleges performed better than non-specialist schools, but again the differences were relatively small. Pupils in language colleges, which achieved the best value-added results, were 0.06 of a level ahead in each subject. As a level represents approximately two years' work, this difference means that pupils in language colleges were roughly six weeks ahead of their peers in non-specialist schools; pupils in technology colleges were about one month ahead.

Impact on different ability groups

The results of multilevel modelling for key stages 2–3 are shown in Figures 3.6–3.9. The lines illustrate the 'expected' key stage 3 performance for pupils across the range of prior attainment, taking average values for other background factors. As at GCSE, there is very little difference between the lines for specialist and non-specialist schools.

The gap tends to widen very slightly towards the top, suggesting that specialist schools add marginally more value for high-ability pupils.

Figure 3.6 Average KS3 levels v. KS2: specialist and non-specialist schools

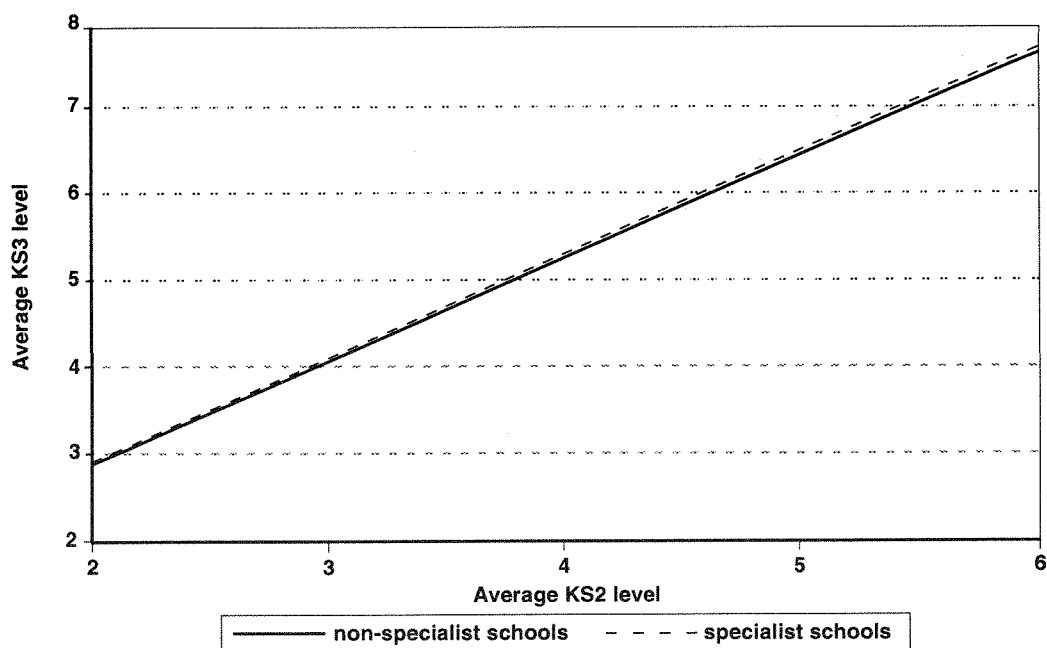


Figure 3.7 KS3 mathematics levels v. KS2: specialist and non-specialist schools

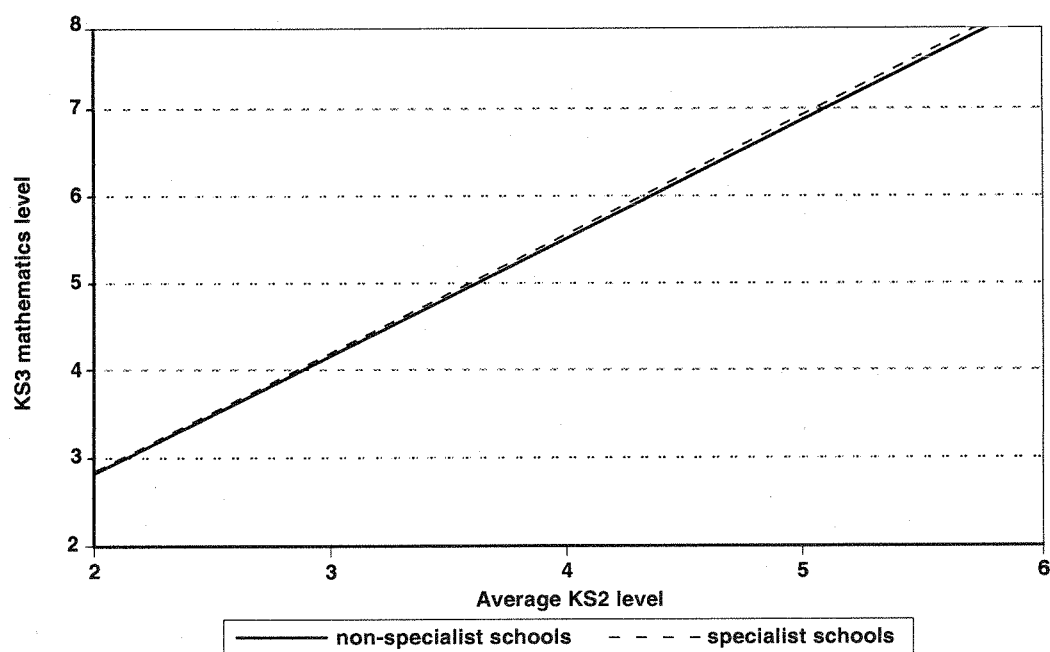


Figure 3.8 KS3 English levels v. KS2: specialist and non-specialist schools

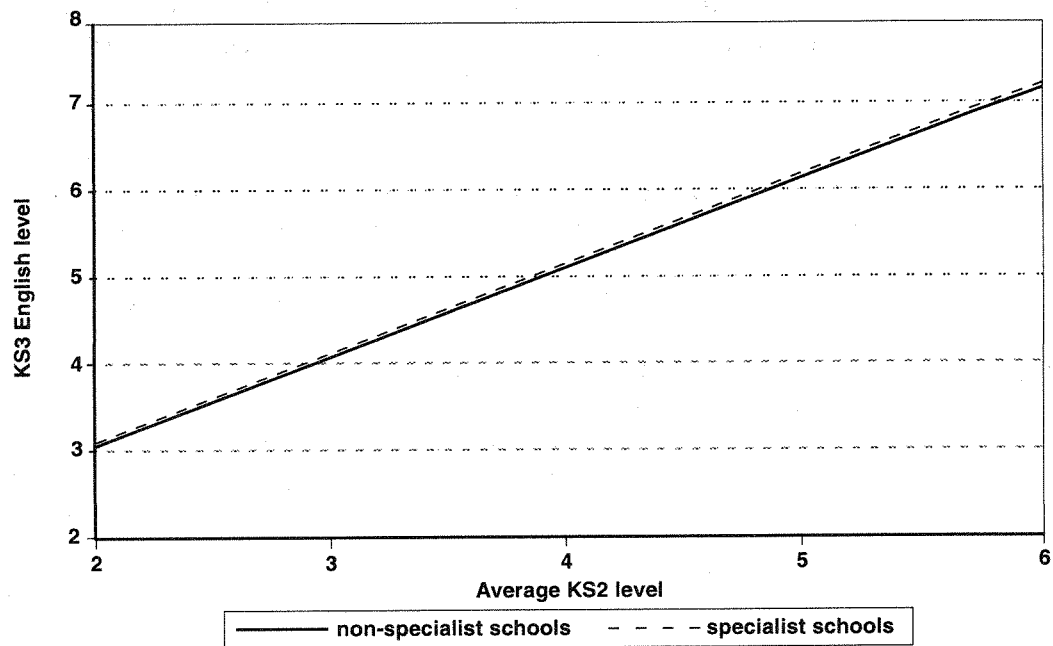
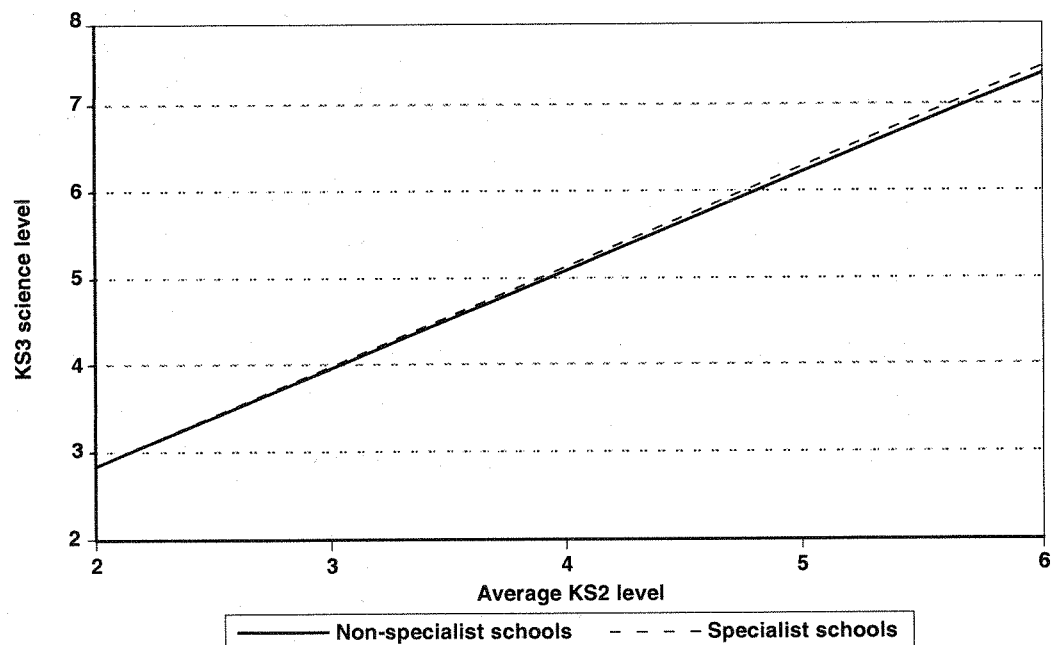


Figure 3.9 KS3 science levels v. KS2: specialist and non-specialist schools



Impact of specialist schools on performance, by LEA

Again, we considered performance results in an LEA context, taking into account the proportion of pupils in specialist schools. Schools were divided into the five categories identified in Section 3.1.1.

A regression analysis was carried out, taking schools in LEAs with no specialist schools as the norm. Table 3.6 lists the significant coefficients of the other school types. The figures given in the table quantify the advantage gained (in terms of key stage 3 levels) by pupils in specialist schools and those in non-specialist schools 'competing' with specialist schools.

Table 3.6 Specialist and non-specialist schools in context at KS3

Outcome	Coefficients (KS3 level difference) relative to LEAs without specialist schools			
	Non-specialist (low specialism LEAs)	Non-specialist (high specialism)	Specialist (low specialism)	Specialist (high specialism)
KS3 average level	0.025	0.012	0.065	0.041
KS3 mathematics	0.017	—	0.059	0.023
KS3 English	—	—	0.050	0.023
KS3 science	0.049	0.028	0.079	0.065

Specialist schools (whether in a 'high specialism' or 'low specialism' area) have positive coefficients for all four outcomes, i.e. they obtain significantly better results than schools in areas without specialist schools (though the differences are again relatively small). However, in contrast with the GCSE findings, non-specialist schools co-existing with specialist schools outperform other schools in terms of science and average key stage 3 level; non-specialist schools in areas of high specialism also perform slightly above the norm in mathematics.

A further analysis was undertaken in order to compare the overall results of the three types of LEA: high specialism, low specialism and no specialism. Taking the latter as the default, the coefficients (differences in key stage 3 levels) for high- and low-specialism LEAs are shown in Table 3.7.

Table 3.7 The impact of specialist schools on KS3 results, by LEA

Outcome	Coefficients (KS3 level difference) relative to LEAs without specialist schools	
	Low specialism	High specialism
KS3 average level	0.027	0.017
KS3 mathematics	0.016	—
KS3 English	—	—
KS3 science	0.048	0.035

Compared with other LEAs, those with specialist schools obtain marginally better results for science and average key stage 3 level; this is also true for mathematics in areas of low specialism. It appears that, at this level, the presence of specialist schools can be advantageous, although it would be wise to treat this finding with caution, as low-specialism LEAs obtain better results than LEAs with higher percentages of pupils in specialist schools.

3.1.3 Summary of findings

The value-added analyses of performance data described above aimed to explore three key questions:

- ◆ do specialist schools obtain better (value-added) results than non-specialist schools?
- ◆ are specialist schools particularly effective in dealing with certain ability groups?
- ◆ do specialist schools succeed at the expense of neighbouring non-specialist schools?

In the light of our findings, the answer to the first two questions is reasonably clear, the answer to the third question much less so.

Our analysis indicates that, in 2000, technology and language colleges obtained better results than non-specialist schools at key stage 3 and at GCSE; for arts and sports colleges, the picture is more varied and less positive.¹⁴ Given that technology colleges are by far the biggest category, this means that specialist schools on average outperformed non-specialist schools, but only to a very small degree. At key stage 3, it appears to be the high-ability pupils who benefit. At GCSE level, high-ability pupils benefit in terms of total but not average point score, which suggests that high-ability pupils in specialist schools are encouraged to take more GCSE subjects than their peers in non-specialist schools.

Although our analysis demonstrates that two kinds of specialist schools achieved consistently better results than non-specialist schools, it does not necessarily follow that their achievement is due entirely to their specialisation. It could be, for example, that the additional funding given to specialist schools was a contributory factor (see discussion in Section 2.1.2). Further, prior attainment is included in our models, but it could be that there are other differences (not accounted for) between pupils in specialist and non-specialist schools.

One hypothesis is that specialist schools attract parents who are committed and supportive, and therefore pupils with more positive attitudes and

¹⁴ It should be noted that sports and arts colleges are relatively new designations (dating from 1997) and this could perhaps explain their relative lack of success. Language colleges date from 1996, and technology colleges from 1994, although the majority of schools in both these categories were designated in 1997 or later.

behaviour.¹⁵ If this is correct, then neighbouring non-specialist schools would be expected to suffer by being 'creamed' of such pupils. To explore this, we conducted an analysis which took context into account, and considered areas without any specialist schools as the norm.

The analysis of GCSE data appeared to provide some confirmation of the hypothesis, since specialist schools consistently performed above the norm, while co-existing non-specialist schools generally performed at or below the norm. However, at key stage 3, the co-existing non-specialist schools performed at **or above** the norm, suggesting that they had not been adversely affected by the presence of specialist schools in their area.

The evidence on this subject is therefore ambiguous. The key stage 3 data alone could indeed suggest that the presence of specialist schools is having a (very slight) positive impact on neighbouring comprehensives. However, if this is the case, we would expect that LEAs with a high proportion of specialist schools would obtain the best results of all; whereas our findings show that the best results are obtained by the LEAs with a lower proportion (up to 20 per cent) of pupils in specialist schools.

3.2 The Impact of Faith Schools

In order to analyse the value added by faith schools, it was necessary first to identify the schools formally linked to the various religious traditions. This proved to be more difficult than we had anticipated. The classification provided by DfEE (2000) includes (at secondary level) 27 schools designated 'other Christian faith'. We wished, if possible, to be more precise. Not all of these schools were included in the NVADs we were using (some were middle rather than secondary schools). Those that were comprised some joint C of E/RC schools, one or two belonging to other Christian traditions (e.g. Seventh Day Adventist) and some that had no obvious religious affiliation. Having confirmed this by telephone calls, we transferred the schools concerned to the 'non-religious' category. We acknowledge that some schools consider themselves to be 'broadly Christian' in character, but for the purpose of this project we needed to identify those schools which are formally associated with a church or other religious faith. We have done this to the best of our ability and knowledge, but cannot guarantee that there are no mistakes at all in the classification.

3.2.1 Key stage 3 to GCSE

Bearing in mind the caveat above, Table 3.8 shows the number of faith schools included in the NVAD for key stage 3 1998 to GCSE 2000. As would be expected, the two large categories are Roman Catholic (338 schools) and C of E (141 schools). Five Jewish schools are identified and

¹⁵ OFSTED (2001) makes very positive comments about pupil attitudes in the specialist schools visited.

treated here as a separate group (no Sikh or Muslim schools are included in the NVAD). As noted above, the 'Other Christian' category includes joint RC/C of E schools as well as schools belonging to other Christian traditions. We acknowledge that this is not an entirely satisfactory grouping, but it is not feasible to further subdivide a category which is already very small. In total, nearly 15 per cent of pupils are in faith schools at this stage; more than two-thirds of these are in Catholic schools, and most of the others are in C of E schools.

Table 3.8 Pupils and schools with different religious affiliations

Religious affiliation	Number of schools	Percentage of schools	Number of pupils	Percentage of pupils
Non-religious	2632	84.3	412088	85.4
Roman Catholic	338	10.8	47365	9.8
Church of England	141	4.5	21336	4.4
Other Christian	8	0.3	937	0.2
Jewish	5	0.2	673	0.1
Total	3124		482399	

The five outcomes investigated were as in the analysis of specialist schools (see Section 3.1.1). The background variables were also the same, except that, at school level, type of religious affiliation replaced type of specialism.

Overall impact of faith schools

A multiple regression analysis was undertaken in order to compare performance in faith and other schools, controlling for prior attainment and other background variables. Table 3.9 shows the significant coefficients of faith schools' impact at GCSE. The figures in the table indicate the number of GCSE points gained (or lost) by pupils in faith schools compared with the norm represented by non-religious schools.

Table 3.9 The impact of faith schools at GCSE

Outcome	Coefficients (GCSE score difference) relative to non-religious schools			
	Roman Catholic	Church of England	Other Christian	Jewish
GCSE total score	1.454	1.117	2.161	4.604
GCSE average score	0.030	—	—	0.552
GCSE mathematics	0.031	—	-0.129	0.522
GCSE English	0.150	0.056	0.061	0.307
GCSE science	-0.017	—	-0.080	0.507

Faith schools in all four categories obtain significantly better results in terms of GCSE English and total point score. For other subjects, the picture is less clear. Catholic schools are above average for mathematics, but below average for science; Jewish schools are above average for both; 'other Christian' schools are below average for both; C of E schools are not significantly better or worse for either subject.

Although all four groups are ahead of non-religious schools in terms of total point score, only two (Jewish and RC) are significantly above the norm in terms of average score. Moreover, although the advantage of RC schools is significant, it is very slight relative to their advantage in total score. This suggests that church schools may enter pupils for more GCSEs, which would increase their total score but not necessarily their average score. GCSE in religious education is often compulsory in church schools, and if it is taken as an extra subject (rather than an option) this could help to explain our findings.

Overall, it is the Jewish schools which produce by far the best results. They are the only group to be significantly ahead on all five outcome measures. Moreover, for each outcome measure they have by far the highest coefficient. In terms of total score, they are nearly five points ahead (equivalent to an additional grade C) and on most other measures they are half a point/grade ahead. For English, the advantage is only 0.3, but this is still double that achieved by any other category of school.

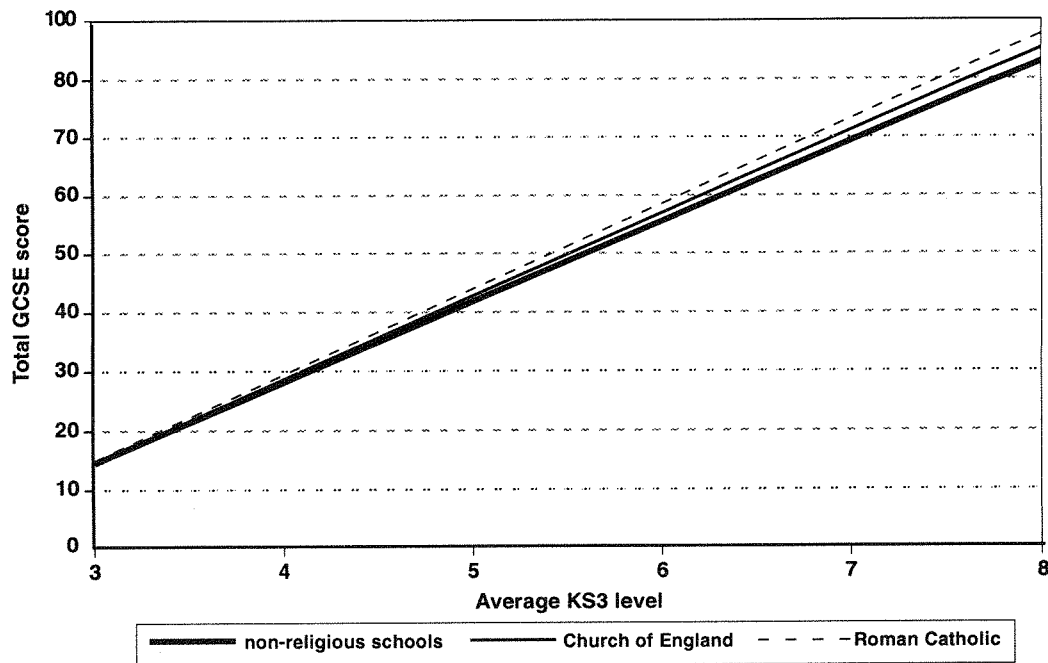
On the whole, it seems that church schools – whether C of E, RC or 'other Christian' – outperform non-religious schools on some measures, but only to a very slight degree.

Impact on different ability groups

Multilevel models were set up for each of the five outcome measures, incorporating all of the background variables listed above. The results are shown in Figures 3.10–14. The lines illustrate the 'expected' GCSE performance for pupils across the range of prior attainment, taking average values for the other background factors. Only the three main school categories are illustrated; the Jewish and 'other Christian' categories are very small, and two extra lines would make the graphs more difficult to read. In each graph, the thick black line represents the performance of pupils in non-religious schools; the thin line represents pupils in C of E schools and the broken line pupils in RC schools.

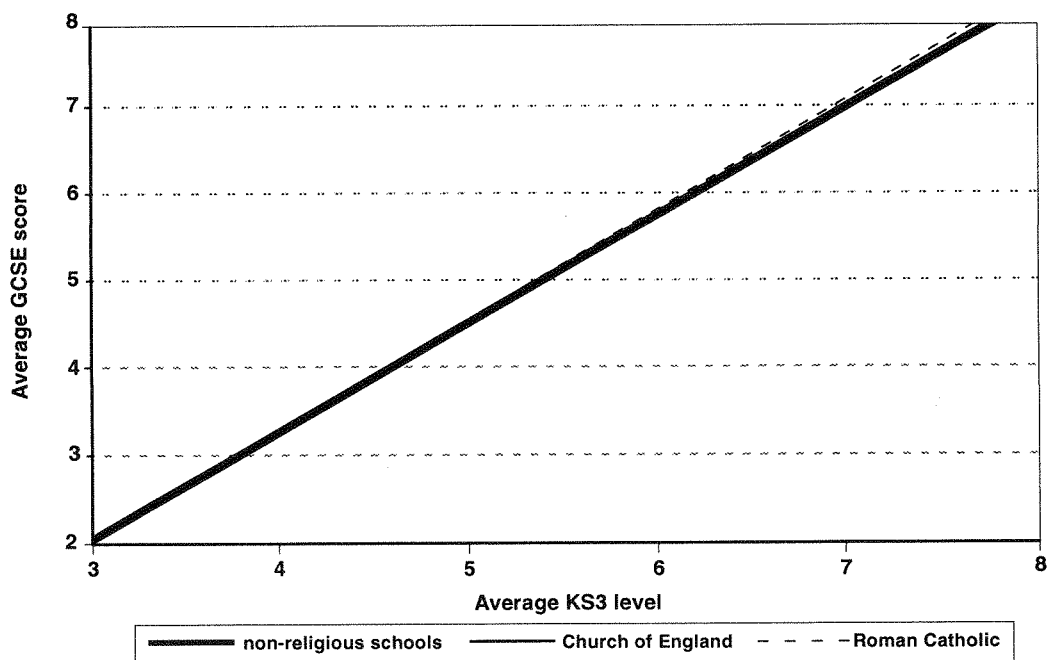
In Figure 3.10, illustrating total scores, the three lines overlap at the low-ability end, but gradually diverge. It appears that pupils with below-average attainment at key stage 3 (levels 3–4) will, on average, attain the same total score regardless of school type, but the positive impact of being in a church school is experienced more strongly as we move up the ability range; pupils who have achieved level 7 (for example) at key stage 3 will obtain significantly better total GCSE scores in a church school (particularly a Roman Catholic school). In the light of the foregoing discussion, this may mean that church schools encourage their most able pupils to take additional GCSE subjects.

Figure 3.10 Total GCSE score v. KS3: religious and non-religious schools



This hypothesis is confirmed by looking at Figure 3.11, illustrating average GCSE score. Here the line representing Church of England schools is indistinguishable from that representing non-religious schools, and the RC line is only barely distinguishable towards the top of the ability range. Church schools have less impact in terms of average score, which again suggests that their advantage in total score is due to taking extra GCSE subjects.

Figure 3.11 Average GCSE score v. KS3: religious and non-religious schools



In mathematics (Figure 3.12) and science (Figure 3.14), there is very little difference between church schools and other schools. In English (Figure 3.13), however, church schools clearly outperform non-religious schools. In C of E schools, the advantage appears to be focused on lower-attaining pupils, while in RC schools, it is experienced across the whole ability range.

Figure 3.12 Mathematics GCSE score v. KS3: religious and non-religious schools

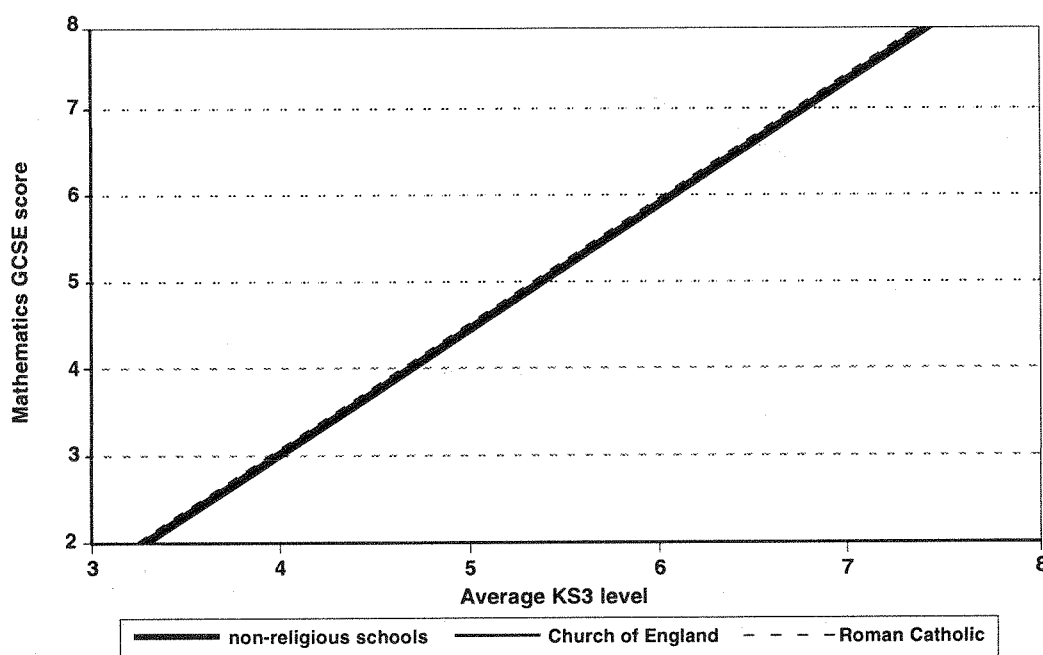


Figure 3.13 English GCSE score v. KS3: religious and non-religious schools

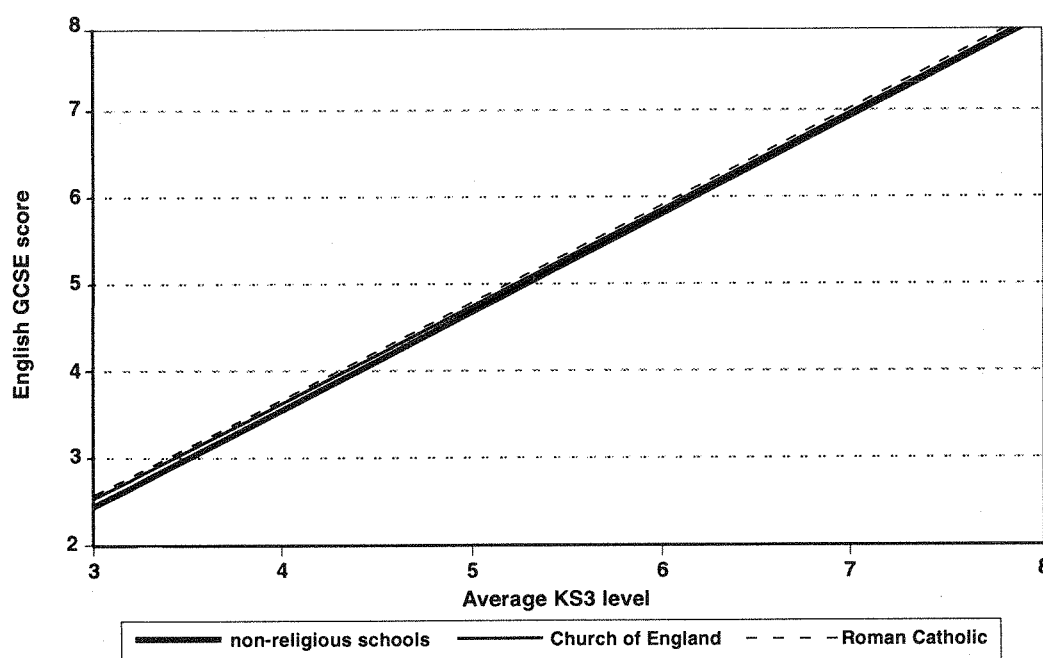
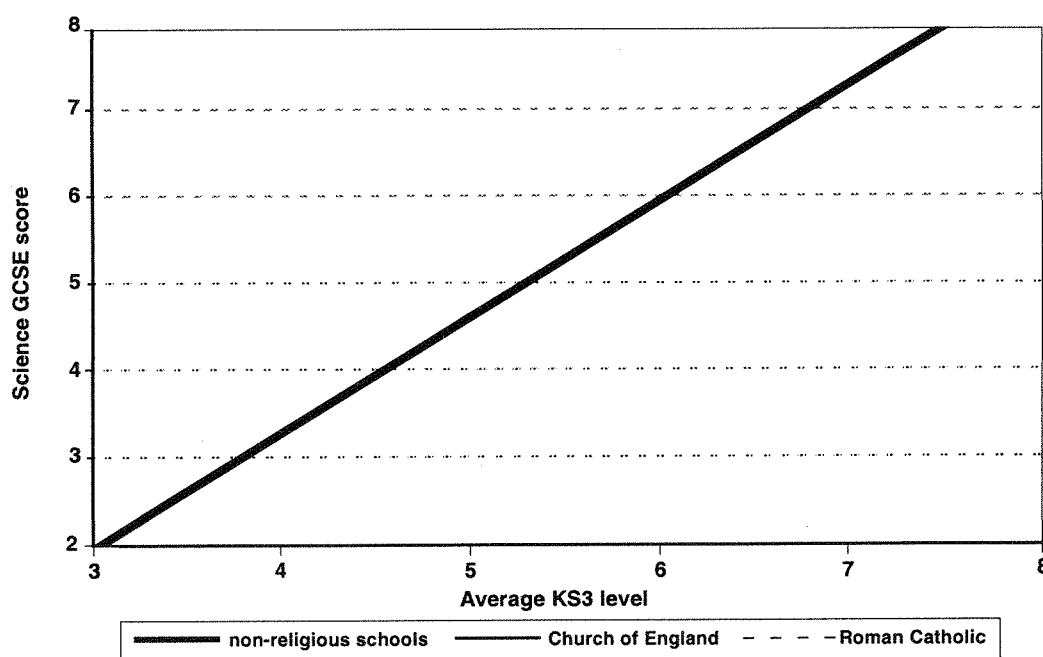


Figure 3.14 Science GCSE score v. KS3: religious and non-religious schools

Impact of faith schools on performance, by LEA

In Section 3.1.1, we noted the suggestion that specialist schools may attract supportive families with an interest in education, and therefore succeed to some extent at the expense of neighbouring schools, who are deprived of potentially 'good' pupils. A similar argument is often advanced with reference to faith schools: because they have good results and good reputations, informed parents may be keen to obtain places for their children, even if they are not adherents of the religion concerned. This could further improve the results of faith schools, and thus contribute to an increasing polarisation between faith schools and other schools.

To test this hypothesis, we again considered performance results in an LEA context, taking into account the proportion of pupils in faith schools. As before, we divided schools into five categories:

- ◆ faith schools in LEAs where up to 20 per cent of the pupils were in faith schools
- ◆ other schools in that type of LEA
- ◆ faith schools in LEAs where over 20 per cent of the pupils were in faith schools
- ◆ other schools in that type of LEA
- ◆ schools in LEAs which had no faith schools.

A regression analysis was carried out, taking schools in the eight LEAs with no faith schools as the norm. Table 3.10 lists the significant coefficients of the other school types. The figures in the table indicate the number of extra GCSE points gained (or lost) by pupils in faith schools and those in schools 'competing' with faith schools.

Table 3.10 Faith schools in context at GCSE

Outcome	Coefficients (GCSE score difference) relative to LEAs without faith schools			
	Non-religious (low % in faith schools)	Non-religious (high % in faith schools)	Religious (low % in faith schools)	Religious (high % in faith schools)
GCSE total score	-0.224	-0.325	1.074	1.253
GCSE average score	-0.061	-0.042	-0.047	—
GCSE mathematics	—	0.019	—	0.058
GCSE English	-0.053	-0.032	0.055	0.101
GCSE science	-0.051	-0.027	-0.084	—

The pattern is similar to that observed in Table 3.3, but not quite so clear. Faith schools have mainly positive outcomes (five, against two negative); again, they seem to score particularly well in terms of total GCSE point score. By contrast, 'competing' non-faith schools are below the norm for all outcomes except mathematics. This provides some confirmation for the hypothesis that faith schools are succeeding to some extent at the expense of neighbouring schools.

To explore the issue further, the analysis was rerun combining all schools within the three types of LEA: high percentage in faith schools, low percentage in faith schools, no faith schools. Taking the latter as the default, the coefficients (differences in GCSE scores) for the other types of LEAs are shown in Table 3.11.

Table 3.11 The impact of faith schools on GCSE results, by LEA

Outcome	Coefficients (GCSE score difference) relative to LEAs without faith schools	
	Low % in faith schools	High % in faith schools
GCSE total score	—	0.230
GCSE average score	-0.060	-0.030
GCSE mathematics	—	0.031
GCSE English	-0.048	—
GCSE science	-0.065	-0.032

LEAs with a high proportion of pupils in faith schools achieve better than average results in terms of total point score (again, possibly due to compulsory RE GCSE) and mathematics (though the difference here is very slight). In terms of average score and science, these LEAs are below

the norm, and for English there is no significant difference. In general, they perform a little better than LEAs with a low proportion of pupils in faith schools, which achieve at or slightly below the norm in all outcomes.¹⁶

3.2.2 Key stage 2 to key stage 3

The value-added analyses were repeated for key stages 2–3, using the four outcomes defined in Section 3.1.2.

Overall impact of faith schools

Once again, a multiple regression analysis was undertaken, and Table 3.12 shows the significant coefficients of faith schools' impact at key stage 3. Numbers in the table indicate the difference (in levels) between the outcomes of pupils in faith schools and the norm represented by non-religious schools.

Table 3.12 The impact of faith schools at key stage 3

Outcome	Coefficients (KS3 level difference) relative to non-religious schools			
	Roman Catholic	Church of England	Other Christian	Jewish
KS3 average level	-0.011	0.029	0.055	0.110
KS3 mathematics	-0.045	—	—	0.132
KS3 English	0.066	0.062	0.162	0.146
KS3 science	-0.057	0.033	—	—

As at GCSE level, the Jewish schools perform best, although at this stage their science outcomes are not significantly different from non-religious schools. However, their performance in mathematics and English is strong, and their average score is 0.11 levels above the norm. If a level equates to approximately two years' work, then pupils in Jewish schools are more than two-and-a-half months ahead of others at key stage 3.

Christian schools of all types are ahead in English, and Church of England schools are also ahead (but only marginally) in science. RC schools have significantly lower levels in mathematics and science, and therefore lower average levels. Average levels are significantly above the norm in C of E and 'other Christian' schools, but not as far above as in Jewish schools; using the same formula (one level = two years), pupils in 'other Christian schools' would be about five weeks ahead of pupils in non-faith schools, while those in C of E schools would be two to three weeks ahead.

¹⁶ It should be noted that only eight LEAs have no faith schools at all included in the 1998–2000 NVAD, and as those LEAs may not be entirely representative, it would be unwise to conclude that having a low percentage of pupils in faith schools results in below average performance. It is more instructive to compare results for the 'high' and 'low' categories, and these consistently favour the former, although the differences are small.

Impact on different ability groups

The results of multilevel modelling for key stages 2–3 are shown in Figures 3.15–18. Figure 3.15 demonstrates again that there is very little difference between RC, C of E and non-religious schools in terms of average key stage 3 level. In mathematics (Figure 3.16) and science (Figure 3.18), RC schools appear to achieve slightly poorer outcomes with their lower-attaining pupils. In science, C of E schools add slightly more value at the top end of the ability range.¹⁷

Figure 3.15 Average KS3 levels v. KS2: religious and non-religious schools

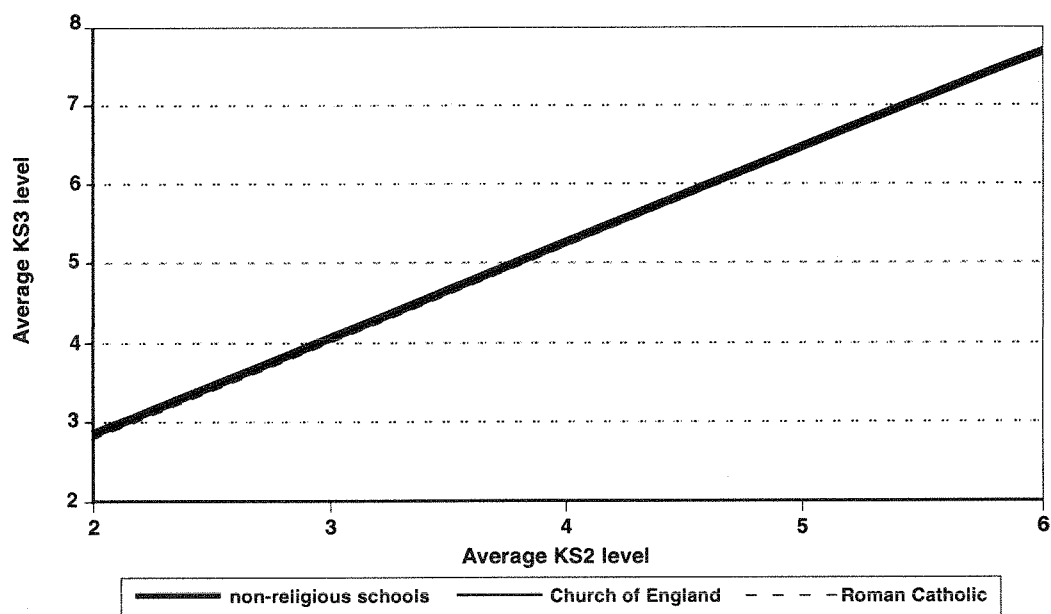
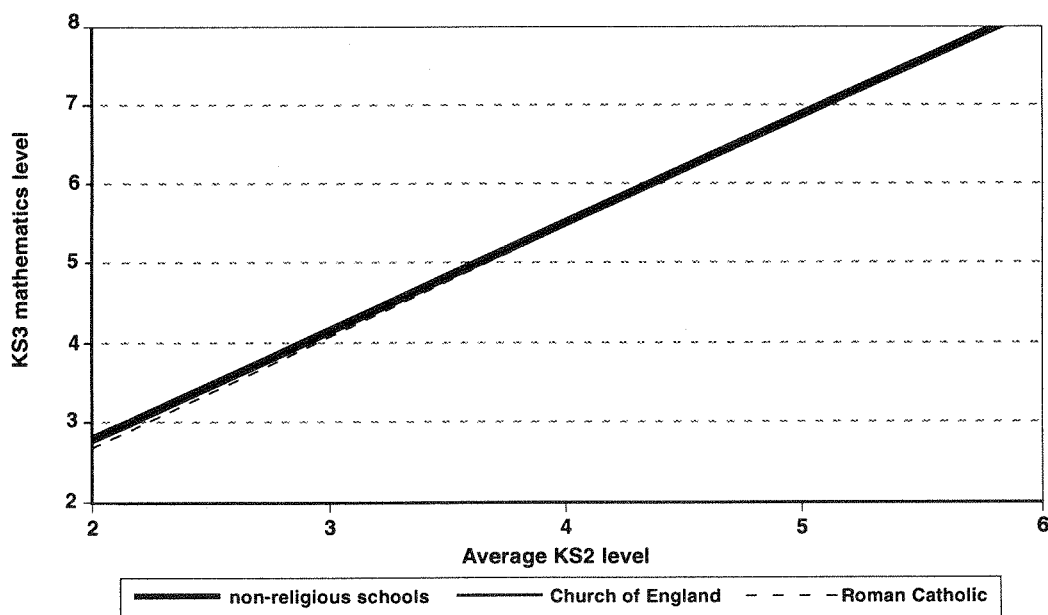


Figure 3.16 KS3 mathematics levels v. KS2: religious and non-religious schools



¹⁷ This is more clearly visible on a larger copy of the graph.

In English (Figure 3.17), lower-attaining pupils in both types of church school outperform their peers in non-religious schools. It must be emphasised again that all these differences are very slight, so it would be unwise to place too much emphasis on them.

Figure 3.17 KS3 English levels v. KS2: religious and non-religious schools

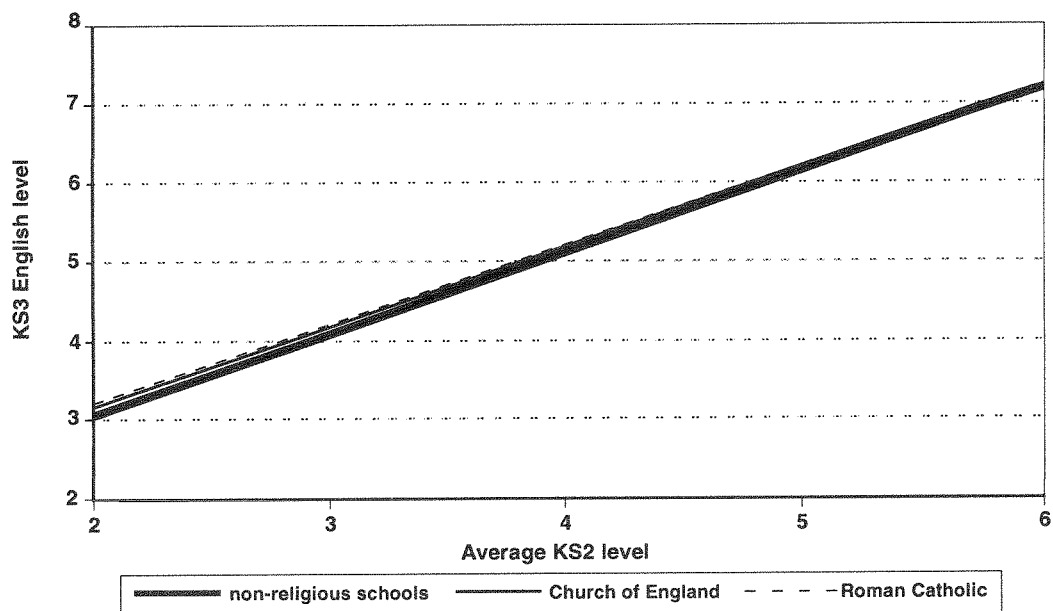
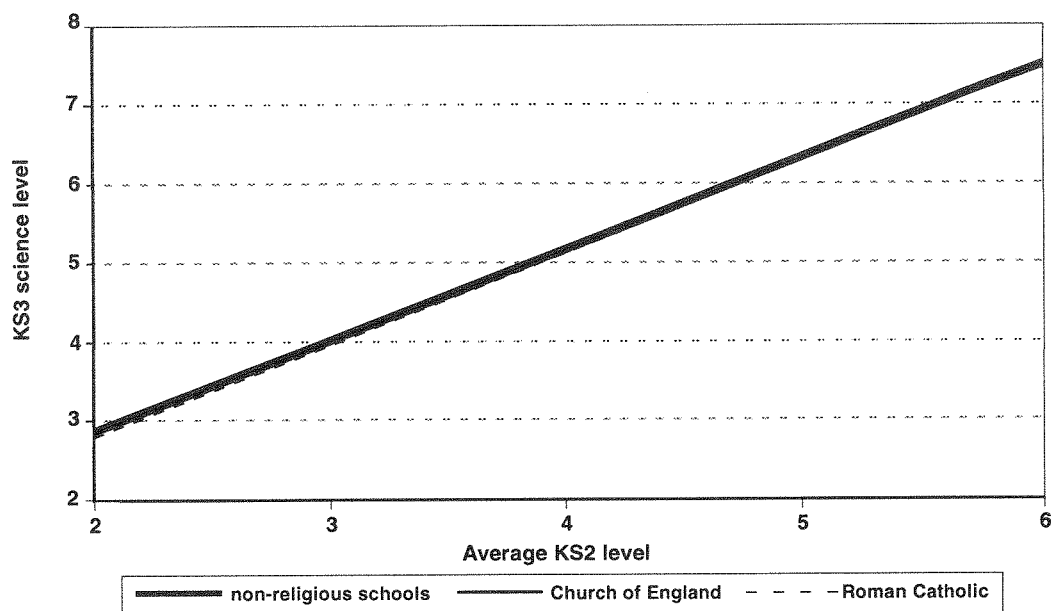


Figure 3.18 KS3 science levels v. KS2: religious and non-religious schools



Impact of faith schools on performance, by LEA

Again, we considered performance results in an LEA context, taking into account the proportion of pupils in faith schools. Schools were divided into the five categories identified in Section 3.2.1.

A regression analysis was carried out, taking schools in LEAs with no faith schools (nine, in this case) as the norm. Table 3.13 lists the significant coefficients of the other school types. The figures in the table quantify the advantage gained (in terms of key stage 3 levels) by pupils in faith schools and those in schools 'competing' with faith schools.

Table 3.13 Faith schools in context at key stage 3

Outcome	Coefficients (GCSE score difference) relative to LEAs without faith schools			
	Non-religious (low % in faith schools)	Non-religious (high % in faith schools)	Religious (low % in faith schools)	Religious (high % in faith schools)
KS3 average level	0.008	—	—	0.030
KS3 mathematics	0.038	0.036	-0.008	0.020
KS3 English	—	-0.015	0.050	0.084
KS3 science	—	—	-0.045	—

Faith schools in 'high faith' areas have three significantly positive outcomes, English being the most striking. Other schools in the same areas are at or below the norm for every outcome except mathematics. This might seem to suggest that the faith schools are taking 'better' pupils. However, in the 'low faith' areas, non-faith schools perform better than faith schools. One could hypothesise that in such areas, there is less room in faith schools for pupils who are not adherents of the faith concerned; consequently there would be fewer places for the children of informed, supportive parents who might choose faith schools on other grounds. However, there is no clear evidence to support this speculation.

A further analysis was undertaken in order to compare the overall results of the three types of LEA: high percentage faith schools, low percentage faith schools, no faith schools. Taking the latter as the default, the coefficients (differences in key stage 3 levels) for the other types of LEAs are shown in Table 3.14.

Mathematics is the only subject for which LEAs with faith schools outperform others. In English, LEAs with a low percentage of pupils in faith schools are marginally below the norm; for all other outcomes, the difference is not significant.

Table 3.14 The impact of faith schools on KS3 results, by LEA

Outcome	Coefficients (KS3 level difference) relative to LEAs without faith schools	
	Low % in faith schools	High % in faith schools
KS3 average level	—	—
KS3 mathematics	0.035	0.034
KS3 English	-0.010	—
KS3 science	—	—

3.2.3 Summary of findings

The analyses aimed to discover whether faith schools were more successful than other schools, in value-added terms. The findings have not yielded clear answers, but they have raised issues which are worthy of further exploration. The first question is why Jewish schools are so successful in value-added terms. The analysis has shown that they obtain much better results than other schools (Christian and non-religious) for all of the outcomes investigated except key stage 3 science. There are of course only five schools in this category, so it is open to question whether their success is due to the inherent nature of Jewish schools, or to other shared characteristics.

For Christian schools, the picture is much more varied and complex. A slight advantage in terms of GCSE total score could be due to taking an extra GCSE subject (perhaps RE). Beyond this, different types of church school obtain results above or below the norm in different subjects at different key stages. For example, RC schools are negative for most key stage 3 outcomes, but positive for all GCSE outcomes except science. There is no obvious way to balance these differences, which are in any case very slight. We must therefore say that, overall, RC schools do not seem to perform better or worse than non-religious schools.

C of E schools, on the other hand, have some significantly positive outcomes (and no significantly negative outcomes) at both key stages. Overall, then, they seem to perform marginally better than non-religious schools, but again, we must stress that the difference is very slight.¹⁸

One point worthy of note is that faith schools of all types outperform non-religious schools at both key stages in English. Again, the difference is small, but it is consistent,¹⁹ and it would be interesting to explore whether

¹⁸ It should be noted that, because of the large numbers of schools and pupils in these analyses, quite small differences will be flagged as statistically significant.

¹⁹ Cf. the QUASE results cited in Section 2.2.2.

there is something in the nature of faith schools which encourages development of literacy skills, or whether other factors are involved. For example, it may be that faith schools have a lower average proportion of children with English as an additional language (EAL), which could have an impact on English results.

As noted in Section 2.2, the aims of faith schools are broader than simply raising academic attainment, important though that is. Nevertheless, one might hypothesise that creating a caring, supportive and well-ordered environment would provide a climate in which teaching and learning would flourish, and that this would lead in turn to high achievement. We have not found any clear evidence to support this view (except possibly in the case of Jewish schools).

A further hypothesis is that faith schools do well because the families are part of a recognisable community, and that as a consequence there would be shared values, a high degree of parental support and good home-school relations. None of these factors could be included in our models, but all could contribute to good results and indeed could help to explain the highly positive outcomes achieved by Jewish schools. However, one might expect the same factors to enhance results in RC schools (and much less in C of E schools); yet our findings show that overall, C of E schools have a positive (albeit very slight) impact, while for RC schools, mainly positive outcomes at GCSE are balanced by largely negative outcomes at key stage 3.

4. SUMMARY AND CONCLUSIONS

In this chapter, we summarise findings from the literature review and the value-added analysis, relating to specialist schools and faith schools.

4.1 Specialist Schools

Previous value-added analysis, undertaken by Jesson, has indicated that specialist schools are outperforming other comprehensives in terms of GCSE outcomes (although, by his calculations, the difference between actual and predicted results is less stark in 2000 than it was in 1999).

Our analysis of 2000 GCSE results was based on pupil-level data, covered a wider range of outcomes and differentiated between types of specialist school. It is therefore difficult to make a direct comparison. However, we would agree that, in terms of total point score, there is a small positive advantage associated with most types of specialist school (sports colleges being the exception).

A similar analysis of 2000 key stage 3 results indicated that technology and language colleges are performing above expectations, while arts colleges are below (for all outcomes except English) and sports colleges are not significantly different from expectations.

The positive (albeit slight) benefit of being in a specialist school appeared to be experienced mainly by high-ability students at key stage 3. There was also some evidence to suggest that the more able pupils in specialist schools are encouraged to take more GCSEs, which would explain why their total point score is relatively high when compared with their average point score.

Further analysis showed that, while specialist schools are performing above the norm (represented by LEAs without specialist schools), neighbouring schools are performing below the norm at GCSE (though not at key stage 3). Although the differences are slight, this may be regarded as support for the hypothesis that specialist schools are (to a small degree) succeeding at the expense of neighbouring non-specialist schools.

On the whole, LEAs with a high proportion of specialist schools performed no better than those with a low proportion. There was thus no evidence to support the suggestion that an increase in the number of specialist schools would yield improvements in overall performance results.

Our findings confirm that specialist schools (more precisely, technology and language colleges) outperform non-specialist schools. However, it was beyond the scope of our analysis to identify the reasons for this. Although we allowed for prior attainment and other pupil- and school-level data (such as FSM), there are intake factors which we could not take into account (e.g. the degree of parental support). There is also the fact that specialist schools are given additional resources, and that in itself could contribute to their success.

We summarised findings from case-study research undertaken in order to identify the key characteristics of high-performing specialist schools. On the whole, these were factors associated with effective schools in general, and did not relate directly to specialist status.

4.2 Faith Schools

Although church schools have existed for many years, we found few examples of research designed to explore their impact on performance. We examined a number of general studies, which were not undertaken for that purpose, but used school type as a variable. They yielded some slight evidence of positive impact in terms of total GCSE point score and English GCSE.

Our analysis confirmed those findings, although the picture was not entirely consistent across key stages or between different categories of faith schools. Roman Catholic schools performed above expectations on most GCSE outcomes, but mainly below at key stage 3. By contrast, C of E schools performed in line with expectations on some outcomes, and above on others, at both key stages. The best results were achieved by Jewish schools, which were well above the norm (4.6 points in terms of total GCSE score) for all outcomes except key stage 3 science.

As suggested above, faith schools of all types obtained good results in terms of total GCSE point score, and English (at both key stages). Their advantage was much less clear in terms of average point score, which probably reflects the fact that pupils (particularly the more able) are encouraged to take an additional GCSE; this could reflect the fact the GCSE RE is compulsory in many church schools.

Comparing faith schools and neighbouring schools against a norm represented by LEAs without faith schools, faith schools achieved mainly above or at the norm, while 'competing' schools were mainly below at GCSE level (there was little difference at key stage 3). Again, this could suggest that faith schools are succeeding to some extent at the expense of neighbouring schools. However, LEAs with a high proportion of pupils in faith schools obtained marginally better results than those with relatively few.

Overall, considering all outcomes at both key stages, the data suggests that the performance of Roman Catholic schools is basically the same as non-faith schools: C of E schools are perhaps slightly ahead, but only just. However, faith schools of all types appear to outperform other schools at both key stages in English, and it would be interesting to investigate why this is so.

We must stress that our analysis was limited to examination performance, and that faith schools are often commended on different grounds – notably for their ethos, values and behaviour. We have discussed an analysis of OFSTED inspection data which provides evidence in support of this view (with specific reference to RC schools). However, it might seem reasonable to suppose that these positive features would provide a climate in which teaching and learning would flourish, and that this would lead in turn to high achievement. We have not found any clear evidence to support this view, except perhaps in the case of Jewish schools.

4.3 Conclusions

Our findings indicate that some specialist schools and some faith schools perform above expectations on some outcomes. For technology colleges and language colleges, this is true at key stage 3 and key stage 4, although the differences (between those colleges and non-specialist schools) are not great. Further, the association may not be causal – we have noted other factors which may explain why those colleges are obtaining better results.

We found some evidence (at GCSE level, but not at key stage 3) to suggest that specialist schools may be having a slight negative impact on neighbouring schools. Our findings do not indicate that an increase in the number of specialist schools (and the number of specialisms) would necessarily lead to an improvement in performance.

Although C of E and RC schools perform above the norm on some outcomes, there is no clear pattern of enhanced performance. It seems likely therefore that the good ‘raw’ results achieved by many church schools reflect the nature and quality of their intake. There is no evidence to suggest that an increase in the number of faith schools would improve overall performance, although it could of course have other benefits.

Two interesting findings have emerged from our study of faith schools, which would merit further exploration. First, our value-added analysis has confirmed that church schools consistently achieve better than expected results in English. Second, five Jewish schools – the only non-Christian faith schools for which we have data – performed remarkably well in 2000, obtaining results significantly above the norm for all key stage 4 outcomes, and all but one key stage 3 outcome.

As we noted above with reference to specialist schools, an association does not always imply cause and effect. Our analyses took into account prior attainment (the chief determinant of performance) and a number of other pupil- and school-level factors (see Section 3.1.1). There are other relevant variables for which we had no data and therefore could not include, such as ethnicity, EAL, and level of parental support. Moreover, although FSM is the best available proxy for social deprivation, it is clearly a crude measure which does not give us information about the socio-economic status of a school's intake, beyond defining the proportion of pupils in receipt of free school meals.

It would be worthwhile, therefore, to undertake a further study which would attempt to take such factors into account. Such a study would need to use a combination of qualitative and quantitative methods, in order to determine to what extent the modest advantages of specialist and faith schools identified in this report derive from the intrinsic nature of the schools concerned, and to what extent they are the product of factors which may relate strongly (but not exclusively) to particular school types.

REFERENCES

CHURCH SCHOOLS REVIEW GROUP (2001). *The Way Ahead: Church of England Schools in the New Millennium*. London: Church House Publishing.

DEPARTMENT FOR EDUCATION AND EMPLOYMENT (1998). *Specialist Schools: Education Partnerships for the 21st Century*. London: DfEE.

DEPARTMENT FOR EDUCATION AND EMPLOYMENT (2000). *Statistics of Education: Schools in England 2000*. London: DfEE.

DEPARTMENT FOR EDUCATION AND SKILLS (2001). *New Beacon and Specialist Schools to Deliver Excellence Through Diversity* (DfES Press Notice 2001/0279). London: DfES [online].
Available: <http://www.dfes.gov.uk> [18 December, 2001].

GILLMON, E. (2001). *Best Practice in Technology Colleges: a Guide to School Improvement*. London: Technology Colleges Trust.

GOLDSTEIN, H. (2001). *The 2001 Education White Paper and Evidence Based Policy: a Commentary* [online].
Available: <http://www.ioe.ac.uk/hgpersonal/specialistschools> [18 December, 2001].

GREAT BRITAIN. PARLIAMENT. HOUSE OF COMMONS (2001). *Schools Achieving Success* (Cm. 5230). London: The Stationery Office.

HENRY, J. and HUTCHINS, L. (2001). 'Specialist status not such an advantage', *Times Educ. Suppl.*, **4458**, 7 December, 11.

HEWITT, I. (2001). 'Faith schools do not create ghettos', *Times Educ. Suppl.*, **4458**, 7 December, 22.

JESSON, D. with TAYLOR, C. (2000). *Value Added in Specialist Schools 1999*. London: Technology Colleges Trust.

JESSON, D. with TAYLOR, C. (2001). *Educational Outcomes and Value Added Analysis of Specialist Schools for the Year 2000*. London: Technology Colleges Trust.

KENDALL, L. (1996). *Examination Results in Context. Report on the Analysis of 1994 Examination Results*. London: Association of Metropolitan Authorities.

KENDALL, L. (1997). *Examination Results in Context. Report on the Analysis of 1995 Examination Results*. London: Association of Metropolitan Authorities.

KENDALL, L. and AINSWORTH, L. (1997). *Examination Results in Context: Analysis of 1996 Examination Results*. London: Local Government Association.

LEARNER, S. (2001). 'Inspectors highlight specialist failings', *Times Educ. Suppl.*, **4450**, 12 October, 14.

MANSELL, W. and BARNARD, N. (2001). 'Faith school opposition multiplies', *Times Educ. Suppl.*, **4449**, 5 October, 1.

MARKS, J. (1998). *An Anatomy of Failure: Standards in English Schools for 1997* (Social Market Foundation No. 35). London: Social Market Foundation.

MARKS, J. (2001). 'Standards in Church of England, Roman Catholic and LEA schools in England.' In: BURN, J., MARKS, J., PILKINGTON, P. and THOMPSON, P. *Faith in Education. The Role of the Churches in Education: a Response to the Dearing Report on Church Schools in the Third Millennium*. London: Institute for the Study of Civil Society.

MATTHEWS, A. (2001). 'Girls will be girls in choice of career', *Times Educ. Suppl.*, **4447**, 9 September, 11.

MORRIS, A.B. (1994). 'The academic performance of Catholic schools', *School Organisation*, **14**, 1, 81-9.

MORRIS, A.B. (1998). 'Catholic and other secondary schools: an analysis of OFSTED inspection reports, 1993-95', *Educational Research*, **40**, 2, 181-9.

MORTIMORE, P., SAMMONS, P., STOLL, L., LEWIS, D. and ECOB, R. (1988). *School Matters: the Junior Years*. Wells: Open Books.

THE NATIONAL ASSEMBLY FOR WALES (2001). *Church School Secondary Education in Wales: Examination and Attendance Data, 2000* (SDB 21/2001). Cardiff: The National Assembly for Wales.

NUTTALL, D. (1990). *Differences in Examination Performance* (RS1277/90). London: ILEA Research & Statistics Branch. Cited in: MORRIS, A.B. (1994). 'The academic performance of Catholic schools', *School Organisation*, **14**, 1, 81-9.

OFFICE FOR STANDARDS IN EDUCATION (2001). *Specialist Schools: an Evaluation of Progress*. London: OFSTED.

OFFICE FOR STANDARDS IN EDUCATION and YOUTH SPORT TRUST (2000). *Sports Colleges: the First Two Years*. London: The Stationery Office.

PASSMORE, B. and BARNARD, N. (2001). 'Voters oppose expansion of faith schools', *Times Educ. Suppl.*, **4457**, 30 November, 1.

RUTTER, M., MAUGHAN, B., MORTIMORE, P. and OUSTON, J. with SMITH, A. (1979). *Fifteen Thousand Hours: Secondary Schools and their Effects on Children*. London: Open Books.

SAMMONS, P., THOMAS, S., MORTIMORE, P., WALKER, A., CAIRNS, R. and BAUSOR, J. (1998). 'Understanding differences in academic effectiveness: practitioners' views', *School Effectiveness and School Improvement*, **9**, 3, 286–309.

SAUNDERS, L. (1998). *'Value Added' Measurement of School Effectiveness: an Overview*. Slough: NFER.

SCHAGEN, I. (1996). *QUASE: Quantitative Analysis for Self-Evaluation. Technical Report 1996: Analysis of GCSE Cohorts 1993 to 1995*. Slough: NFER.

SCHAGEN, I. (2000). *Statistics for School Managers*. Westley: Courseware Publications.

SCHAGEN, I. and WESTON, P. (1998). 'Insights into school effectiveness from analysis of OFSTED's school inspection database', *Oxford Review of Education*, **24**, 3, 337–44.

SMITHERS, R. (2001). 'Today's special', *The Guardian*, 19 July.

THOMAS, S., NUTTALL, D. and GOLDSTEIN, H. (1993). *Report on the Analysis of 1991 Examination Results* (AMA Project on Putting Examination Results in Context). London: University of London, Institute of Education.

TOOLEY, J. and HOWES, A. (1999). *The Seven Habits of Highly Effective Schools*. London: Technology Colleges Trust.

WEST, A., KLEINMAN, M., NODEN, P. and WHITEHEAD, C. (2000). *Examining the Impact of the Specialist Schools Programme* (DfEE Research Report 196). London: DfEE.

YEOMANS, D., HIGHAM, J. and SHARP, P. (2000). *The Impact of the Specialist Schools Programme: Case Studies* (DfEE Research Report 197). London: DfEE.

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