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Specialist Schools – what do we know?

A report by

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Executive summary

This report aims to pull together what we know about one of the key innovations in educational policy of the last few years – specialist schools. It is a review of the research, commentary and informed opinion to give an overview of the development of the policy and its implementation and the impacts it has had on the quality of teaching and learning across secondary schools in England. Currently, in 2005/06, there are 2,380 specialist schools operating (75% of all secondary schools) and they are educating over half of all secondary school pupils.¹ Furthermore, it is intended that every secondary school that is up to standard will be a specialist school by 2008.

The report covers the following aspects of the specialist schools policy:

- Background – the history of the development of the policy
- Impacts on equity and accessibility
- Impacts on teaching and learning
- Methods for estimating value added by schools
- Conclusion

Background

The specialist schools programme was launched in 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 status. By January 2004, more than half of all secondary schools (54%) had gained specialist status and in 2006, the proportion is 75 % *. Currently, specialist status can be obtained in the following curriculum areas: technology; language; arts; sports; business and enterprise; maths and computing; science; engineering; humanities; music; combined subjects and, special educational needs.

Up to 1999, all schools wishing to apply for specialist status were required to raise £100,000 in sponsorship from business, charitable or other private sector sponsors. This has now been reduced to £50,000 and there are funds available to help schools that are finding difficulties in raising sponsorship.

Impacts on equity and accessibility

Concern was expressed that the Specialist Schools Programme would further the progress of a two-tier education system. The principal questions raised were:

- Will the provision of considerable extra funding for specialist schools increase the disadvantageous position of those that have not achieved specialist status?
- Does the existence of specialist schools contribute to the creation of a hierarchy, which itself is discriminatory?
- Do specialist schools discriminate against pupils?

* A further 123 schools were added to the programme on January 31 2006, 12 sport, 3 languages, 25 arts, 16 business and enterprise, 6 engineering, 12 humanities, 16 maths and computing, 3 music, 13 science, 7 technology and 10 combined specialisms

There is evidence to show that that specialist schools have benefited substantially, both from grants and from sponsorship. DFES spending on specialist schools increased from £41 million to £145 million between 1998 and 2003. This means that specialist schools have considerably higher levels of funding than those that do not currently have specialist status. However, there is no direct evidence on whether this has created a hierarchy of schools in a given locality. Given the Government's commitment to ensure that every eligible school will become a specialist school by 2008, it is unlikely that a hierarchy will be created on this basis, although the possession of specialist status *alongside* being a foundation or a VA school does seem to provide advantages in terms of hierarchical position.

In terms of access, there is some evidence from research that since 1997, when Labour came to power, secondary schools have become more socially segregated. In terms of selection by ability or aptitude, although under the School Standards and Framework Act 1998, there is provision for schools with a specialism to select up to 10% of pupils by aptitude in the relevant specialism, evidence suggests that this is not an option that has been widely taken up.

Impacts on teaching and learning

The current body of evidence about specialist schools is equivocal about their impact. It is clear that the majority of specialist schools are highly effective (four fifths of an Ofsted survey carried out in 2001 were judged to be so) (Ofsted 2001). But whether this is due to their selection practices (overt and covert), or to their being already highly effective in order to obtain specialist status, is not clear. There is no proven causal link between the improved performance of these schools and their specialist status.

A second evaluation carried out by Ofsted and published in 2005 (Ofsted 2005) found that five out of six of the schools visited were now achieving the aims of the programme (compared with four out of five in 2001). Compared to other schools, specialist schools do well against a range of indicators, including leadership and management, quality of teaching and improving standards.

Research funded by the then Technology Colleges Trust in 2002, investigated the factors that underlay the high performance in 20 specialist schools. These were:

- High quality teaching and learning
- School ethos and culture
- Monitoring and evaluation
- Leadership and Curriculum improvements
- Extra-curricular activities
- Resources

Of all of these, the only factor that could be directly attributed to specialist status is the final one – the provision of extra resources. All the other factors could be present in effective schools, no matter what their status.

The success of specialist schools in terms of raising standards in specialist subjects has varied, but generally, there have been significant improvements. Overall, in specialist subjects, the combined average points score for each pupil was higher in technology, language, arts and sports colleges than the average in other maintained schools (Ofsted, 2001). However, in their 2005 report, Ofsted commented that the rate of improvement in pupils' performance in the specialist subjects was levelling off.

There is evidence that new specialist subjects or courses have been introduced in the vast majority of specialist schools and that specialist subject entries at GCSE have been higher per pupil in each type of specialist school than for all schools, suggesting an extension of the range of opportunities for pupils attending specialist schools.

There has been a keen debate about the best methods for estimating the impact of specialist schools on GCSE results, which is described in some detail later in this report. So currently, there is no consensus on the size of the difference between specialist and non-specialist schools in terms of value-added, although specialist schools on average are estimated to have added 1.4 grades to a student's GCSE/GNVQ total score compared to non-specialist schools.

However, the evidence from the research is reasonably consistent in finding that pupils at specialist schools do slightly better at GCSE and KS3 than pupils with similar characteristics that we have data for at non-specialist schools, after controlling for differences in school context. The size of this 'specialist schools effect' is estimated to be around 1– 2 GCSE grades. The preferred method for estimating value added on statistical grounds is multilevel modelling.

Conclusion

The debate on the efficacy of specialist status as a method for improving standards of teaching and learning in secondary schools in England has been hampered by lack of robust research information about the impacts of the policy, as it has been implemented so far. Much of the evidence provided by Government has been inconclusive or methodologically suspect. There is evidence of improved performance in specialist schools, but it is not clear whether this is due the specialist status *per se* or the extra funding and drive generated around becoming a specialist school. Despite the reservations expressed by the Education and Skills Committee, after their enquiries into secondary education and diversity, the Government has provided a robust defence of the policy and has signalled its determination to extend specialist status to all schools that qualify.

Introduction

This report aims to pull together what we know about one of the key innovations in educational policy of the last few years – specialist schools. It is a policy that has transmuted several times under successive governments, and is still in a state of development. Thus, it has been difficult to capture ‘what we know’, as the definitions, criteria, eligibility, aims and objectives and expectations of specialist schools are constantly evolving. Within these limitations, we have tried to pull together research, commentary and informed opinion to give an overview of the development of the policy and its implementation and the impacts it has had on the quality of teaching and learning across secondary schools in England.

Current situation

Currently, in 2005/06, there are 2,380 specialist schools operating (75% of all secondary schools) and they are educating over half of all secondary school pupils. The latest tranche of schools includes 11 ‘trailblazer’ special schools that have been selected to apply for designation in a new specialism for special educational needs (SEN), which specialise in one of four areas of the SEN Code of Practice:

- Communication and interaction;
- Cognition and learning;
- Behaviour, emotional and social difficulties; or
- Sensory and/or physical needs.

This specialism is a separate strand from the curriculum specialisms currently offered and it is hoped to extend the option to a number of other special schools in due course.

Further increases are clearly being planned. ‘It is intended that every secondary school which is up to standard will be a specialist school by 2008, with every community having one or more specialist schools offering choice and excellence to parents and children alike’ (DfES, 2004b).

The review

The report covers the following aspects of the specialist schools policy:

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- Impacts on equity and accessibility
- Impacts on teaching and learning
- Methods for estimating value added by schools
- Conclusion

Background

The specialist schools programme was launched in 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 status. Language colleges were introduced in 1995. Despite the expectation that the specialist schools programme might be discontinued by the new Labour government elected in May 1997, it was instead, re-launched, extended and diversified and specialist schools for sports and arts were introduced. By July 1997 there were 252 specialist schools, which included 196 technology colleges, 47 language colleges, six sports colleges and three arts colleges (DfEE, 1997). It was stated that specialist schools would commit themselves to *‘becoming local and regional centres of achievement and excellence in their specialist subjects; raising standards of achievement for all their students, of all abilities; developing and sharing their good practice; and being active partners in a learning society, with their local families of schools and their communities’* (DfEE

1997). Specialist schools were to celebrate their differences, while sharing a vision and working in close partnership with business and industry, colleagues in other institutions, their LEAs and local communities. They were to form a focal point for revitalizing education in areas of socio-economic disadvantage, particularly in Education Action Zones (DfEE, 1997).

Up to 1999, all schools wishing to apply for specialist status were required to raise £100,000 in sponsorship from business, charitable or other private sector sponsors (DfEE, 1997) and it was suggested that sponsorship was not to be a one-off financial contribution but also gave sponsors the opportunity to become closely involved in a school's development. Despite the somewhat daunting prospect of raising funds of this order, the number of specialist schools continued to rise and by January 1998, 290 schools had been given specialist status in a hundred English Local Authorities. These included: 210 technology colleges, 50 language colleges, 17 sports colleges and 13 arts colleges (Edwards,1998). The amount required to be raised in sponsorship was reduced to £50,000 in 1999 and the number of specialist schools rose further, in line with plans, which had indicated that there would be 1000 by 2003 and 1500 by 2005 (DfES, 2001b). Some 79 new specialist schools were announced in June 2001. This meant that the year's target to create 650 specialist schools had been exceeded and that the total number had been taken to 684 (DfES, 2001a). A new range of specialisms was announced in 2002, and the first schools with these specialisms were 18 business and enterprise colleges, four engineering colleges, 12 maths and computing colleges and 24 science colleges (DfES, 2002b). Progress continued on track and by September 2002, one in three pupils was being educated in 992 specialist schools (DfES, 2002b).

In February 2003, 217 more specialist schools were announced. This achieved a total of 38% of schools having specialist status (1,209 in all), which exceeded the stated target of 1,000 by September 2003 (DfES, 2003). It was also announced that music and humanities specialisms would be available to schools that applied from October 2003.

By January 2004, more than half of all secondary schools (54%) had gained specialist status, with the latest designated specialist schools including the first Humanities and Music colleges to open in September 2004, as well as a 'rural academy' of nine schools with specialist technology status. By this time more than 1.5 million pupils were being taught in specialist schools. In July 2004, a further 268 new specialist schools were designated. These included 46 arts colleges, 39 business and enterprise colleges, nine engineering colleges, 14 humanities colleges, four music colleges, 49 science colleges, 25 sports colleges, 20 technology colleges, and 15 schools with combined specialisms. The rise of specialist status from 38% in 2003 to 62% of all secondary schools in 2004 was a huge increase.

Table 1 shows the trends in specialist school designation from 1994 to 2005. Obviously, in the early years, there was a limited range of specialisms available, but more recently, as more options have been offered, there has been a decline in the popularity of technology as a specialism (although it remains the largest group), continued interest in arts and sports and relatively high interest in business and enterprise, maths and computing, and science. Although languages has been a choice for specialisation since 1997 of the scheme, it has not been as popular as other options, and currently is one of the least chosen specialisms. Engineering was made available in the same year as science, maths and computing and business and enterprise, but has proved less popular than these, perhaps because of the high costs of equipment. (See footnote page 1)

Table 1 Specialist schools by specialism and year of designation

Year designated	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total
Technology	42	35	43	41	46	40	51	58	79	62	47	31	575
Language	0	6	24	15	11	13	26	27	31	32	15	13	213
Arts	0	0	0	6	11	10	28	33	81	57	78	81	385
Sports	0	0	0	11	15	11	29	34	60	68	55	51	334
Business and Enterprise	0	0	0	0	0	0	0	0	18	64	64	55	201
Maths and Computing	0	0	0	0	0	0	2	0	12	64	77	51	206
Science	0	0	0	0	0	0	1	0	24	97	103	44	269
Engineering	0	0	0	0	0	0	0	0	4	10	21	6	41
Humanities	0	0	0	0	0	0	0	0	0	0	18	42	60
Music	0	0	0	0	0	0	0	0	0	0	5	10	15
Combined	0	0	0	0	0	0	1	0	0	10	28	31	70
Special	0	0	0	0	0	0	0	0	0	0	0	11	11
Total designated	42	41	67	73	83	74	138	152	309	464	511	426	
Cumulative total	42	83	150	223	306	380	518	670	979	1443	1954	2380	2380

Impacts on equity and accessibility

Concern was expressed that the Specialist Schools Programme would further the progress of a two-tier education system (Thornton, 2001). The principal questions here would appear to be:

- Will the provision of considerable extra funding for specialist schools increase the disadvantageous position of those that have not achieved specialist status?
- Does the existence of specialist schools contribute to the creation of a hierarchy, which itself is discriminatory?
- Do specialist schools discriminate against pupils?

Funding issues

It is unsurprising, given the amount of controversy surrounding specialist schools, and their ongoing meteoric rise, that many questions were being asked in the House of Commons on this subject, prior to the examination of witnesses and the subsequent publication of the House of Commons Education and Skills Committee Report: *Secondary Education: Diversity of Provision* (2003). Common topics for parliamentary questions were: funding and sponsorship; the number of schools which had taken on specialist status and the specialisms chosen; information about targets and success; pupil teacher ratio, selection of pupils and community use of specialist schools; free school meals figures and the number of specialist schools in areas of deprivation; and, the extent to which schools were successful on their first application for specialist status.

Many of these questions reflect the areas of general concern which had been expressed about specialist schools and, in particular, funding. Parliamentary questions about funding and sponsorship have included requests for information on the names of sponsors, the amount of money contributed by external sponsors and the amount contributed by the Department (Hansard 19 December, 2001a). While responses indicated that *'the names of sponsors of each specialist school can be provided at only disproportionate cost'* the contribution of external sponsorship up to that time was stated to be at least £58 million. £245 million of additional resources had been provided by the department; £108 million was to be provided in 2002-03 to

support additional specialist schools, and £127 million in 2003-04 (Hansard 17 January, 2002b).

Table 2 indicates additional DfES spending on specialist schools.

Table 2 DfES additional spending on specialist schools

School Year	Number of schools	Expenditure by DfES including initial capital grant and recurrent funding
1998-99	327	£41.0m
1999-2000	403	£49.8m
2000-01	536	£71.9m
2001-02	685	£94.0m
2002-03	992	£145.3m

Source: House of Commons Education and Skills Committee (2003) para 12

The question of whether schools had received public funds to assist their specialist school bids was raised (Hansard 17 January 2002b) receiving the response that ‘*no public sector funds may be counted towards the sponsorship supporting a specialist school application*’. This is, doubtless, highly significant in areas where there is little private enterprise to offer such funding and where employment is largely provided by the public sector. As already stated, the amount that schools are required to raise was reduced to £50,000 in 1999 but the question of abolishing the requirement for schools to provide these funds remains an issue. This was raised in a parliamentary question, along with a query as to whether assessment had been made of the difficulties of raising the required funding in areas of high deprivation (Hansard 17 January 2002a). The response to this indicated that there were no abandonment plans but that sponsorship criteria were kept under review, that there was awareness of fund-raising difficulties and that the Technology Colleges Trust and Youth Sport Trust were grant aided to provide advice and support to applicants, including in relation to raising sponsorship. As far as the number of grants facilitated by the Technology Colleges Trust is concerned, the response to a question about this (Hansard 24 January, 2002), indicated that of 238 applications for arts, technology and language status between June 1999 and March 2000, 88 applicants included sponsorship facilitated through the Technology Colleges Trust, a little under a third.

In 2002, the Government introduced a Partnership Fund to provide support to specialist school applicants that could demonstrate their efforts to find sponsorship had been unsuccessful. This would appear to provide some response to the difficulties experienced by schools in their bids to raise money, but it is difficult to assess how successful it is in alleviating those difficulties. The October 2003 bidding round was the first in which applicants could apply for these funds and 53 of the newly designated specialist schools at that time benefited from this fund. This figure represents 20-25% of schools gaining designation. This grew to 77 of the 268 newly designated schools in July 2004. Had such funding been available earlier it might have assisted, to some extent, the 50% of schools whose bid for specialist status failed in 2002. However, as they had already applied for specialist status, these schools may already have secured the funding. Given that the money available to the Partnership Fund for 2004/5 was £3million, it seems likely that the 77 schools that have thus far received assistance with funding will have received substantial amounts. If the whole of the £3 million were involved this would mean that each school received almost £40,000. Understandably, given the potential amounts involved, there is a degree of vigilance on the part of the providers in that applicants have to account for any school monies eligible as sponsorship that are not being put towards their specialist bid.

The regulations for eligibility for specialist status have changed since the programme began. In some cases this has been a response to difficulties that have been expressed, one of which was the raising of initial funds. Despite the reduction in the funding required, heads have expressed concern not only about the amount of time involved but also the difficulties of raising funds where several schools in one area are attempting to obtain sponsorship from the same sources. DfES guidance (2002a) made some attempt at alleviating these difficulties by announcing a reduction in the sponsorship requirement for small schools (defined as schools with 500 pupils or less). Such schools are now required to raise £100 in sponsorship for each pupil on roll, subject to a minimum of £20,000 for a school with 200 pupils and a maximum of £50,000 for a school with 500 pupils on roll. It remains to be seen whether this change is helpful. It still means that a school with 500 pupils has to raise the same amount of sponsorship money as a school with 1000 or more pupils. Nonetheless, it is felt that this move goes some way to counter the fear that the Government would focus on bids from larger urban schools (Revell, 2002).

The sums of money involved for those schools gaining specialist status are quite large, particularly when considered cumulatively. A school with 1,000 pupils will gain £592,000 in capital and per pupil grants over a four-year period. After that it will be re-assessed for specialist status. This is a considerable sum for schools in challenging circumstances not to be able to access and clearly puts them at a further disadvantage. However, one of the most significant factors in giving schools accessibility to specialist status may be that the funding cap that limited the budget to provide the £100,000 capital grant has been lifted (Phipps, 2004). This means that, on a capital funding basis at least, specialist status is accessible to every school.

A potential further, and divisive, benefit arising from specialist status is that standard capital and on-going funding may be diverted to other departments within a school (Gorard and Taylor, 2001). Earlier reports had given some confirmation of this. West et al (2000) found that a third of headteachers reported that specialist funding had released existing funds to support non-specialist areas of the school and a much smaller proportion, about 10%, reported that specialist funding was supporting whole school initiatives. In this respect, then there are clear advantages to specialist status and disadvantages to not having it. However, it has been suggested (Yeomans et al, 2000) that using specialist funding to support the achievement of whole school development, for example through the provision of ICT equipment, avoids the marginalisation of non-specialist subjects, but also risks the dilution of the effects of specialist status on specialist subjects. This would appear to be a dilemma if one of the aims is also to bring about whole school improvement. Ofsted (2001) found that four-fifths of specialist schools were using the additional funding from specialist status to upgrade facilities and equipment, to increase staffing and to provide better opportunities for professional development as well as for whole-school use, although this was not always clearly linked to targets. Heads, however, have reported that additional resources have been linked to meeting performance targets, while admitting also that they were experiencing difficulty meeting their targets (West et al, 2000). However, there is also some evidence that target-setting has been viewed as beneficial by specialist schools and that, at least in some cases, it became more precise and systematic as schools gained in experience (Yeomans et al, 2000). This would appear to suggest that this is likely to improve over time and that those schools which have been designated as specialist for longer periods of time will be more successful in this respect. This could account for differences and less successful practice that have been found. At first sight it might appear that specialist schools are spending their additional funding and may not be linking this to targets as effectively as they might, while schools which are not in receipt of such funds do not

have the same opportunity to meet such targets and thus are clearly financially disadvantaged. However, it may be that it takes time to be successful in target setting and target meeting.

This does not really alter the fact that while schools which have been successful in obtaining specialist funding require and have time to improve in these areas having already secured funding, other schools are not enabled to move forward with the benefit of that additional funding. Unsurprisingly, for many heads and governors, the additional funding has been stated as a reason for applying for specialist status for their schools (West et al, 2000). If they take the money and then do not meet their targets, the funding may not continue, but they will nonetheless have enjoyed and benefited from substantial additional funding for a period of four years, and as Taylor reported (2000), at that time, only twenty schools designated as specialist prior to 1997 had failed to secure redesignation. The White Paper "Schools achieving success" (DfES, 2001b) set out the Government's intention to recognize schools as "working towards" specialist status, where they do not yet meet the criteria, thus giving encouragement to schools not yet in a position to meet the criteria. However, this is of no assistance to those schools that are specifically listed as being ineligible for application (see below).

Creation of a hierarchy

Another potential aspect of divisiveness in the specialist schools programme is that of the development of a hierarchy of schools. A recognition of the concerns and a denial that a two tier system would be created by specialist schools had already been made by the DfES (2001b) when Estelle Morris stated in a speech to the Social Market Foundation that, as far as the comprehensive system was concerned *'more of the same won't work'* and her suggestion of the need to end the *'one size fits all'* school caused some dismay (Labour Party, 2002). It had been felt that there was conflict in the messages being given out and there was a strong feeling that there was to be a hierarchy, which would extend from advanced specialist schools down to failing schools (Revell, 2002).

Given that one of the aims of specialist schools is to raise standards, one might also query the discrimination against certain schools in making application for specialist status. Schools in Special Measures, and those identified as having serious weaknesses may not apply and those achieving below 25% in overall GCSE 5+ A* - C performance. Schools facing challenging circumstances, *'will not normally be designated unless recent examination results or other evidence demonstrates that the school is ready for the challenges of specialist school designation'* (DfES, 2002a). One might argue, as the DfES clearly does, that these schools have enough challenges without entering into a new phase of specialist status. However, it is perfectly possible that such status would assist such schools in raising their standards, not least because of the additional funding that would be gained. The Government's stated wish that all schools should eventually become specialist is clearly tempered by statements such as that by Michael Barber quoted in the Guardian that *'They can all be specialist - if they meet the standard'* (Phipps, 2004).

The increased range of specialisms has, doubtless, enabled and encouraged more schools to apply for specialist status. However, given the fact that, as long ago as 2001, it was stated that all schools that are ready should have the opportunity to achieve a new status (DfES, 2001b), and the Government is expecting every secondary school that is eligible will gain specialist status by 2008 (DFES 2004b), the present list of 10 specialisms may continue to exclude some schools. There are, for example, those schools that have already diversified in different areas from those that are eligible for specialist status. While the then Secondary Heads Association

(SHA) now called the Association of School and College Leaders repeatedly requested that the eligible categories of specialism should include schools specializing in work with their community, the DfES argued that 'community' was too difficult to define and that it would not be possible to set targets for specific curriculum areas (Revell, 2002). This appeared inconsistent, given that the guidance on specialist schools always included that relating to a community development plan (DfES, 2002a), with such plans covering links with named schools as well as with identified groups in the wider community. Recently, further steps have been taken with the inclusion of a requirement that one third of recurrent funding must be spent on projects that involve other local schools or community groups.

It has been suggested that many heads do not want to focus on one subject area and that others have not applied because they, too, see the system as divisive (Revell, 2002). It might be acknowledged that, where this is the case, there are other types of status for which application can be made, but it now seems possible that the system will be three tier and not two tier; specialist schools will attract the successful, the academy programme will absorb deprived schools and *'there will be a rump of schools that, because their problems are less critical or their bids less than outstanding, will be left on the periphery'* (Phipps, 2004).

It does appear that the new emphasis on community and the stated opportunity for all schools to become specialist has assuaged the concerns of some headteachers (Phipps, 2004) and new specialisms have attracted applications. This may resolve the difficulties for some schools. An apparent further move forward in response to concern on the part of schools about too much specialization was that from 2004, existing specialist schools were given the opportunity, upon redesignation, of adopting a second specialism, with extra funding of £60 per pupil per year (Specialist Schools Trust, 2004). However, while this is fine for those that already have specialist status, it does not assist those who have not.

Selection and discrimination

It has been suggested that, over time, existing specialist schools have shown a greater tendency to take proportionately fewer pupils from poor families, especially where these schools are their own admission authorities (Gorard and Taylor 2001) and that language and technology colleges have, over time, become more segregated in terms of reducing the percentage of students eligible for free school meals compared to their LEA (Gorard and Taylor, 2001). It has also been suggested that this, together with evidence of higher attainment in specialist schools, will exacerbate existing social and economic segregation in the education system (Gorard and Taylor, 2001) and it has been argued that it is probably easier for schools with more middle-class and supportive parents and local community to raise sponsorship (Schagen and Goldstein, 2002). If this were the case, it would clearly have an impact on the range of schools most able to achieve specialist status. This infers that the more overt forms of selection practised by such schools will not be predominant within the specialist schools sector but that schools that are their own admissions authority, that is, foundation and voluntary-aided schools, will become more socially segregated over time. A more recent analysis by Taylor *et al.* (2005) demonstrated that compared to Wales, where education is largely provided by LEA comprehensive schools, and there are few GM or specialist schools, there is markedly less social segregation than in English schools. Their analysis also showed that, on average, 29 % of schools in England had attracted a more socially privileged intake between 1999/2000 compared to 1994/5. This shift was most marked in grammar schools, comprehensive schools with sixth forms, and, among specialist schools, languages colleges, foundation and voluntary aided (VA) schools. The

evidence from this research seems to indicate that since 1997, when Labour came to power, secondary schools have become more socially segregated.

Surprisingly, perhaps, it was reported that in 1999 almost half of specialist schools were located in the hundred most deprived areas of the country (Technology Colleges Trust, 2000) and that the average proportion of pupils in receipt of free school meals was well above the national figure in the specialist schools visited by Ofsted (2001). Free school meals figures and numbers of specialist schools in areas of deprivation have been the subject of parliamentary questions with responses, again, giving mixed evidence. A table listing 255 schools, referred to in response to a question about the percentage of pupils receiving free school meals (Hansard 17 July 2002c), indicated a range from as high as 60% down to 0% with three quarters of schools having levels of free school meals figures of 10% or below. It is difficult to compare this data with that already cited (Technology Colleges Trust, 2000; Ofsted, 2001), not least because the figures relate to different years. It is clear, however, that some specialist schools have high free school meals figures and it may be that some of the schools with lower figures are within the most deprived areas of the country but are not the most deprived schools within those areas. It is also possible that the figures have changed over time. A table given in response to a further parliamentary question about free school meals in secondary schools and in specialist schools (Hansard 5 November, 2001), shows that, overall in January 2001, the percentage of pupils eligible for free school meals in specialist schools was slightly lower at 14.7 % compared to 16.2 % in other maintained secondary schools. It also showed that in 89 of the 150 LEAs listed, the free school meals figures were higher for the other maintained schools than for specialist schools. In 31 of the listed LEAs the reverse was true. LEAs with only one specialist school were not included in this table. There appears to be relative agreement about figures as similar figures of 14% average of pupils entitled to free school meals in specialist schools and 16% in non-specialist schools, were produced in a data set used by Levačić and Jenkins (2004).

Parliamentary questions have also been asked about other areas relating to the divisiveness of specialist schools, including some about pupil teacher ratio, selection of pupils and community use of specialist schools. The response to a question on pupil-teacher ratio in specialist schools and other secondary schools in England (Hansard December, 2001) showed little difference between them with the figures of 17:1 in maintained secondary schools and 16.9:1 in maintained specialist schools, slightly positive in favour of the latter. This seems surprising, as one might have expected pupil-teacher ratios to be substantially higher in specialist schools given earlier indications in this report that one of the benefits of specialist status is that funding can be diverted. The response to this question appears to suggest that such funding is not being diverted into providing additional staffing. Parliamentary questions related to numbers of specialist schools included one about the percentage of secondary school pupils in specialist schools in each education authority in England (Hansard January, 2002a). The response to this question indicated a huge variation across LEAs, from 64.3% in Wandsworth to 2.9% in Dudley, figures which themselves might also be an indication of the ease with which schools are able to raise money given their geographic location.

In addition to the difficulties and discriminations described above, there is some evidence to suggest that specialist schools, themselves can be discriminatory, although, again, the evidence is conflicting. Under the School Standards and Framework Act 1998, there is provision for schools with a specialism to select up to 10% of pupils by aptitude in the relevant specialism. However, evidence suggests that this is not an option that has been widely taken up. A study of twelve specialist schools found that all but one were comprehensive, that none had changed their

admissions policies as a result of specialist status and that there was no support for selection by aptitude (Yeomans et al, 2000). Ofsted (2001) also found that only about 7% of specialist schools of the 403 operating in September 1999 stated that they had taken up the option to formally select up to 10 % of their pupils on the basis of aptitude. However, this is not to say that other, more covert, forms of selection, as described by West and Hind, were not taking place. The research by West and Hind (2003) carried out for RISE found that in a significant minority of schools, particularly voluntary-aided and foundation schools, 'a variety of criteria are used which appear to be designed to select certain groups of pupils and so exclude others' (West and Hind 2003). However, they add that, this did not relate especially to specialist schools, but more to whether schools were their own admissions authority. This was the case for the early tranche of specialist schools, but those given specialist status more recently were more likely to be community schools and therefore admissions criteria would be set by the LEA.

The response to another parliamentary question (Hansard April, 2002) indicated that no applications for specialist school status at that time included a request to select more than 5% of intake by aptitude, with the response also adding that '*school admissions arrangements are a matter for local determination..*', interesting in view of the Gorard and Taylor comments above. A further question on this subject asked what guidance had been issued '*in respect of the criteria and processes to be adopted and avoided in the selection of pupils by aptitude*' and also what measures had been put in place to evaluate the selection processes (Hansard July, 2002b). The response to this indicated that the flexibility to give priority to pupils on the basis of aptitude is not restricted to specialist schools and that the Code of Practice on school admissions provides guidance '*where the admission authority of a school with a specialism wishes to give priority to up to 10 % of pupils who can demonstrate aptitude for one of the prescribed subjects*', as stated above. Responses to other questions, for example, on selection by aptitude (Hansard July, 2002c), similarly indicated little evidence of overt selection with only 12 specialist schools out of a list of 255 having selected 10% or fewer pupils. This report has already made reference to Ofsted's (2001) findings in this respect but has also pointed out the potential for covert as well as overt selection. The response to a question about means of selection (Hansard 3 December, 2001), made it clear that, although admissions arrangements are set locally, there is overt guidance in the Department's Code of Practice which advises that '*tests used to identify whether a pupil has aptitude for a particular subject should be objective, have a distinctive subject focus, should not discriminate against applicants on the grounds of gender, ethnic origin, disability or family background, and they must test for the subject aptitude concerned, not for any other aptitude or ability*'.

The subject of selection was significantly commented upon in the House of Commons Education and Skills Committee Report on Secondary Education: school admissions (House of Commons Education and Skills Committee, 2004: 58-1). While it is acknowledged that limited use of selection by aptitude is made by specialist schools, the ability to do this was nonetheless criticized on the basis that aptitude testing is hard to defend without evidence of benefit and '*We have not been made aware of any such educational benefits. Nor have we been made aware of any means by which aptitude can be assessed without reference to ability*'. Financial and time costs of testing are also criticized in the report and the document recommends that '*the facility for state funded schools to admit pupils on the basis of aptitude tests should be withdrawn*'.

It would appear that on the basis of the above potential areas of divisiveness of the specialist school programme, the evidence is mixed. It has already been suggested

that there is a huge, and maybe disproportionate, amount of work involved in applying for specialist school status. Reflecting this, the extent to which schools were successful on their first application for specialist status has been the subject of parliamentary questions, as have the specialisms and categories of schools which were short-listed, not short-listed and successful in their applications. The response to one such question showed that 160 schools were successful in their applications, that 22 were short-listed but not successful and that 102 were not short-listed (Hansard July, 2002a). This would appear to indicate that almost half of schools that applied for specialist status in March 2002 were unsuccessful in their application. While one might argue that this suggests a rigorous selection procedure, it would appear also to indicate a great deal of wasted time and effort. There appears to be little difference in the range of schools that were successful and unsuccessful. Of the successful schools only eight were selective while three of the unsuccessful schools were selective. The spread of successful and unsuccessful applications across specialisms was relatively even except in the area of Business and Enterprise which was a new specialism at the time. In this category there were 18 successful and 32 unsuccessful applications, while the longer-standing Technology had 35 successful applications and 15 unsuccessful ones.

Despite the concerns expressed in this report about the Specialist Schools programme, it would appear from evidence given in Parliament that both the selection process and monitoring are rigorous. However, there is still little evidence to suggest that the programme will benefit all pupils. Almost all the specialist schools visited by Ofsted (2001) had experienced an increase in their Year 7 intake, a factor which had also been reported by West et al (2000) and Yeomans et al (2000). While, it is difficult to attribute this solely to the specialist status of the schools concerned, it would appear to have implications for schools that do not have such status. Whether the specialist school programme will form a focal point for revitalizing education in areas of socio-economic disadvantage remains open to question.

Impacts on Teaching and Learning

Are specialist schools achieving their stated aims?

The stated aims of specialist schools have been changed somewhat since their introduction in 1994. The current stated aims are to:

- raise attainment for all students both in the specialist subjects and across the whole curriculum;
- strengthen and develop the quality of teaching and learning strategies in the specialist subjects and use them to help raise standards throughout the school;
- extend opportunities for vocational learning and enrichment activity through the specialist subjects, including through links with sponsors, business, employers, further and higher education institutions and organisations related to the specialism;
- develop within the school, characteristics which signal its specialist ethos and identity and which are reflected in the school's mission and objectives – including through encouragement of increased take-up and interest in the specialist subjects;

- strengthen collaboration with partner schools to provide or facilitate high quality learning opportunities and outcomes in the specialist subjects –by sharing specialist facilities and resources, enhancing further the quality of teaching and developing and disseminating good practice; and
- provide or facilitate high quality learning opportunities and outcomes in specialist subjects for the school's wider local community, including local businesses and employers.

Specialist schools have been the subject of a relatively large number of reports over a relatively short period of time. Nonetheless, it must be noted that, while an attempt here is being made to present an overall picture, these reports were written at different times, were based on evidence from different years and looked at different numbers of schools. Opinion is divided on the achievement of specialist schools between different researchers and official evaluations. As the House of Commons Select Committee Report on Secondary Education: Diversity and Provision (House of Commons Education and Skills Committee, 2003: 34) points out, '*there is an absence of clear evidence as to alleged benefits of specialism*'.

As stated earlier, an evaluation of specialist schools by Ofsted was published in 2001. It was based on special visits made by HMI in summer and autumn 2000 to 46 schools of the specialist types then in operation – 25 technology colleges, nine language colleges, five arts colleges and seven sports colleges. In addition, they reviewed evidence from inspections of the 327 specialist schools designated and operating since 1998.

In the opinion of HMI, four out of five of the well-established specialist schools covered by their survey were achieving the aims of the programme, but one in five was not, and it was considered that this was a waste of opportunities and resources. HMI evaluated six aspects of the specialist schools' activities: standards; teaching; curriculum; provision; links with other schools; links with the community.

The characteristics of the schools included in the survey indicated that they covered a range of socio-economic and demographic contexts. The average proportion of pupils in the schools receiving free school meals was well above the national figure, and the proportion of pupils from ethnic minority background was similar to the national average. The numbers on special needs registers was below the national average, which indicates that a slightly more able pupil group was choosing (or being chosen by) the schools.

In terms of impacts, the findings on standards as measured by % A*-C GCSE scores were similar to the findings analysed and debated by Jesson (2002b), Schagen and Goldstein (2002) and Levačić (2002). That is, that pupils in technology, languages and arts specialist schools were doing slightly better than the national average and pupils in sports colleges were doing slightly worse, and that the trend in improvement in GCSE scores was slightly higher in specialist schools than in schools nationally.

In terms of quality of provision, HMI found clear evidence of a distinctive character based on the specialism in four fifths of the schools visited. In the remaining one fifth of the schools, there seemed to be little commitment to the concept of the specialist school, and in some, a reluctance to identify with it. The profile of teaching standards was similar to schools nationally. The percentage of very good teaching varied across schools, although it was well above average at KS 3 in language colleges. It is therefore not clear what advantages in terms of quality of teaching, have been brought about by schools achieving specialist status.

Around half the schools offered extra time to expand the range of options available at KS4, but no comparisons were made with schools nationally, so no conclusions could be drawn about whether this was a particular feature of specialist schools.

The one area where HMI found considerable cause for concern was that of the community dimension of their remit. They judged that the majority of schools found this aspect of their work difficult to define, develop and manage. The most successful group of schools in this respect were the sports colleges.

The overall conclusions of the Ofsted evaluation were that the majority of specialist schools were meeting the aims of the programme and making good use of the advantages (i.e. extra funding) that it brings, but that one fifth of the schools they visited had not done so. In terms of the wider impact of the specialist schools programme on other schools in their areas, this was not part of the evaluation and so did not feature in the report, except in respect of the limited realisation of the aim of the programme concerned with collaboration with other schools and the wider community.

Ofsted produced an update on this evaluation in 2005 (Ofsted 2005), based on visits to 52 schools all of which had been operating as specialist schools for at least three years. In addition, they analysed inspection data from 521 designated specialist schools operating in September 2000. The evaluation found that five out of six of the schools visited were now achieving the aims of the programme (compared with four out of five in 2001). Compared to other schools, specialist schools do well against a range of indicators, including leadership and management, quality of teaching and improving standards.

The overall judgement of Ofsted was that:

Being a specialist school makes a difference. Working to declared targets, dynamic leadership by key players, a renewed sense of purpose, the willingness to be a pathfinder, targeted use of funding and being part of an optimistic network of like-minded schools all contribute to an impetus and climate for improvement. (Ofsted 2005, p. 3)

This judgment has been criticised by Glatter (2005). He questions the independence of Ofsted and argues that a careful reading of the full report does not provide sufficient evidence to support the very positive summary provided in the introduction to the report. The report does not attempt to seek other explanations for the (relatively small) advantage that becoming a specialist school seems to impart (for example, the extra money provided, the number of selective schools that are specialist or the fact that schools in special measures cannot apply to be specialist). Furthermore, Glatter argues that Ofsted should make more use of other independent research when making judgments of particular programmes and that they should ensure that summaries and press releases do not give a misleading impression of their findings.

Research carried out by Rudd *et al.* at NFER (2002) and funded by the Technology Colleges Trust, investigated the factors that underlay the high performance in 20 specialist schools. The schools chosen were selected on the basis of their high performance, and thus do not tell us about the generality of such schools. However, there are some useful findings about what factors the schools thought contributed to their high performance. These were:

- High quality teaching and learning – which was achieved through careful selection of staff, on-going staff development and carefully focussed teaching strategies.
- School ethos and culture – including high expectations and a culture of success shared by all, including parents.
- Monitoring and evaluation – including making active use of performance data.
- Leadership and management – the vision and leadership of the headteacher were seen as crucial to the school's success.
- Curriculum improvements – including the freedom to be innovative.
- Extra-curricular activities – a wide range of activities were seen to improve students' motivation and self-esteem.
- Resources – the resources attracted by specialist status had enabled the provision of new facilities, extra staffing and new ICT equipment.

Of all of these, the only factor that could be directly attributed to specialist status is the final one – the provision of extra resources. All the other factors could be present in effective schools, no matter what their status.

Raising the standards of teaching and learning

From the GCSE results of specialist schools one might conclude that the standard of learning has improved and one might, therefore, assume that the standard of teaching was better in order to achieve these results. However, Ofsted found that the profile of teaching in the specialist schools visited was much the same as that nationally, although it was found to be well above the national average in language colleges (Ofsted, 2001). Yeomans et al (2000), however, found that schools themselves had reported changes in teaching and learning approaches. These had included the expansion of ICT in technology and language colleges and the provision of visiting artists and specialist coaches in arts colleges and sports colleges. This might suggest that there could be benefits to being taught in a specialist school but this has to be set within the context of a speech by the Secretary of State in February 2003 indicating that the quality of teaching and learning in schools generally is *'the best it has ever been'*. Harris (2004) perhaps rebuffs any generality about this by suggesting, as a result of her research, that specialist school status is a particularly effective form of school improvement because of its focus on enhancing teaching and learning, both within and across subject areas. *'Specialist School status is considered by Specialist Schools to be an important means of raising attainment and improving performance'*. The trouble with this statement is that it is only the view of specialist schools.

Raising standards in specialist subjects

The success of specialist schools in terms of raising standards in specialist subjects has varied, but appears impressive. Taylor's report on 1999 GCSE results indicated that in Technology colleges, results in design and technology, maths and science showed greater improvement than for all schools, that results in language colleges in German, French and Spanish were higher than in all comprehensive schools, that results in music, drama, art and design were higher in arts colleges than for all schools and that, even in English, the percentage of A*-C grades was higher in technology colleges than in all schools (Taylor, 2000). This was largely supported by the findings of Ofsted a year later. They found that in specialist subjects in language and technology colleges, the average proportion of pupils gaining A*-C grades in 2000 was higher than the national average (Ofsted, 2001). This was also the case in arts colleges except in music, which differed from Taylor's findings. But in sports colleges, Ofsted found the proportion was slightly below the national average. Overall, in specialist subjects, the combined average points score for each pupil was higher in technology, language, arts and sports colleges than the average in other maintained schools (Ofsted, 2001). However, in their 2005 report, Ofsted commented that the rate of improvement in pupils' performance in the specialist subjects was levelling off. They suggest that this is partly due to the concerted effort needed to move from above average to well above average, but also commented that middle managers (subject leaders) were not being sufficiently rigorous in monitoring and improving the quality of provision.

West et al (2000) had found that the average points score for specialist subjects was higher, on average, in specialist schools of each type for both 1997 and 1998. Thus, while there may be minor differences in findings, it would appear that on the basis of achievement in specialist subjects, the specialist schools programme is largely achieving its objectives. Levačić and Jenkins (2004) found that all types of specialist schools added value in their specialist subjects, apart from IT. Given the emphasis on ICT investment in specialist schools this result is surprising. Apart from PE, the estimated added value to the specialist subjects was modest – around 0.14 grades. Only technology and sports schools added value to specialist subjects other than their own, which is consistent with the better overall GCSE performance found for these two specialisms.

Extending the range of opportunities available to students

There is evidence that new specialist subjects or courses have been introduced in the vast majority of specialist schools and that specialist subject entries at GCSE have been higher per pupil in each type of specialist school than for all schools (West et al, 2000) suggesting an extension of the range of opportunities for pupils attending specialist schools. Increased access to ICT and greater curricular opportunities at Key Stage 4 and post-16 have been cited by both parents and pupils in their choice of a specialist school (Ofsted, 2001) and this could account, at least in part, for the increased popularity of these schools. In their 2005 report, Ofsted noted that the range and quality of the curriculum had improved in specialist schools and that more pupils participated in extra-curricular activities, especially in specialist subjects, than at the time of their previous report. They also noted that pupils had a broader range of options in lessons, especially from the age of 14, but that vocational and work-related opportunities were still limited, especially in Arts colleges (Ofsted 2005).

There is not only evidence of increased opportunity in specialist areas of specialist schools, but also in other subjects. Perhaps, unsurprisingly, in language colleges the number of languages taught has increased, in arts colleges new courses have been introduced in performing arts and dance, and in sports colleges, along with enrichment activities in sports, new courses in dance have been introduced (Yeomans et al, 2000). However, there is also evidence that the range of options available at Key Stage 4 is greater in specialist schools and that schools have provided opportunities for pupils to explore 'elements beyond their normal studies' (Ofsted,2001). While, again, it seems that there are benefits for pupils attending specialist schools, and it is also clear that such benefits may not be available to pupils who are not, it has also been found that some pupils in specialist schools have missed out on opportunities because of '*..an absence of clear objectives and a lack of coherent organization..*' (Ofsted, 2001). Thus, even where funding has been given, it would seem there is a danger that pupils are not benefiting as much as might be possible. Further, despite the increase in the number of languages being taught in schools which have been designated as language colleges, it is reported that since the advent of modern foreign languages becoming optional for 14 year olds, more than a third of pupils have abandoned them (Phipps, 2004). It seems likely that schools will bid for areas of specialism where pupil participation will be achieved. Also a condition of status is increased take-up of specialist courses. Consequently, it seems likely that applications for specialist language college status will reduce, bearing out the results of a Specialist School Trust survey indicating that only 3% of the 994 schools still planning to apply for specialist status would bid for this (Phipps, 2004). This seems to have been borne out by the numbers of arts colleges designated in 2004 and 2005 (see Table 1). So, while strategic planning for gaining specialist status may aim to include a cluster of schools agreeing between themselves about areas to bid for (Charles Clarke referred to 'local networks to raise standards' at the Specialist Schools Trust conference in November 2004), policy moves, such as the changing status of modern foreign languages, by ceasing to make it a compulsory national curriculum subject at Key Stage 4, may adversely affect such planning and thus the ability of a group of schools to extend the range of opportunities to pupils.

One factor that may be significant in increasing opportunities and raising standards, and noted in more than one report, is an increase in the overall number of teaching hours per week and in the weekly time allocation for specialist subjects in specialist schools (West et al, 2000; Ofsted, 2001). Enhanced staffing could be a contributor to the feasibility of this and specialist funding could certainly help to achieve it.

Development of schools' characteristics

Specialist schools have varied in the extent to which they have publicly projected their specialist status and some have chosen to retain their existing ethos and image (Yeomans et al, 2000), despite the stated aim that their new identity should be clear. Ofsted found that in over four-fifths of the schools visited there was evidence of a distinctive character based on the specialism (Ofsted, 2001). In other schools, however, they identified some lack of commitment. While accepting that Ofsted made use of data from approximately half of the specialist schools which were in existence at the time, visits were made to only 46 so it is conceivable that information concerning characteristics of schools was not easy to identify in the larger sample. Whatever the case, it seems likely that approximately a fifth of specialist schools in operation at the time of inspection had accepted funding, which was not available to other schools and '*..little attempt had been made to promote a strong specialist character*' (Ofsted, 2001). On this basis, schools excluded from application for the programme or failing in their application would seem justified in feeling that the system is unfair.

Solvason (2005) has made a study of the development of 'ethos' in a sports college. She concluded that 'It takes far more than a new policy to transform the underlying beliefs of a school'. Her view is that 'ethos' grows out of a school's culture and that changing a whole school's culture is a difficult and complex micro-political task. Thus the simple designation of a school as a specialist college will not necessarily bring about a change in its 'ethos'.

Impacts on other schools in the area

Another important question is whether specialist schools, even if they are more effective and have improved at a faster rate than non-specialist schools, have done so at the expense of other schools by attracting a larger proportion of the local pool of better motivated and more able students than they had previously. The research to date has not tested this proposition directly but has provided some suggestive evidence. As already stated, Gorard and Taylor (2001) report a negative tendency i.e., suggesting that Language and Technology colleges have become more segregated in terms of reducing, over time, the percentage of students eligible for free school meals compared to their LEA average. The NFER study (Schagen et al., 2002) found that non-specialist schools in LEAs with specialist schools tended to have slightly lower value added for GCSE total, maths and English scores (but not science) compared to schools in LEAs with no specialist schools. The conclusion is drawn that: '*This could be interpreted as confirming the hypothesis that specialist schools succeed to some extent at the expense of neighbouring non-specialist schools*' (p.25).

The community aspect of the work of specialist schools has been found to be the weakest, except in the case of sports colleges, with good examples of support only being found in about half of technology, language and arts colleges visited by Ofsted (2001). Stronger links have been found with primary schools (Yeomans et al, 2000). Thus it would appear that, not only may other secondary schools be missing out on the funding gained by specialist schools, but also in some cases, they are not being supported by those schools that have benefited from the funding. This is despite the 'family of schools' concept, stated to be a key feature of the work of specialist schools, and which relates to the requirement that specialist schools work with an identified family of schools: primary, middle, special and secondary schools, to devise a community plan that meets the needs of all the partners. Perhaps to encourage greater collaboration, the Specialist Schools and Academies Trust is now offering 'family of schools' members the opportunity to affiliate to the Trust. Despite

the evidence cited above, other research has suggested that specialist school status has a positive impact upon partner secondary and primary schools (Harris, 2004). An impressive range of respondents was involved in this study. However, the sample was taken only from Specialist Schools and their partner schools, and not from other schools that might have been adversely affected by the specialist school programme.

In considering Ofsted's findings, it must be acknowledged that some schools would have been in operation longer than others in their specialist role, although all would have been operational for more than two years. Nonetheless, overall, in terms of establishing the success or otherwise of specialist schools, Ofsted's findings were mixed and, at the most fundamental level, it was suggested that there was much scope for improvement in management contributions towards meeting specialist school targets (Ofsted, 2001). Further, while Sports Colleges are considered to have been successful in their community role, they have been less so in their subject roles. If schools that have been successful in gaining specialist status were considered to be the most likely to achieve the targets, then a finding such as this is surely a matter for concern.

Exam and test results

Generally the evidence shows that specialist schools perform better than non-specialist comprehensives when raw examination results are compared (ie. no adjustment is made for the prior attainment of students). The average annual improvement in GCSE results was found to be higher for specialist than for non-specialist schools by West et al (2000), although a report of 1999 noted that the results of the first specialist schools, designated in 1994 were not much above average in terms of percentage of pupils achieving 5A*-C GCSEs (Tooley and Howes, 1999). A study of twelve specialist schools (Yeomans et al, 2000) reported a slightly higher performance than the West et al report but also found that there were considerable variations with eight schools having improved and four having declined in their GCSE A*-C performance. Ofsted also found that GCSE results varied in different types of specialist schools. More pupils in technology, language and arts colleges were achieving five or more A*-C and A*-G grades than in maintained schools nationally, while the performance of pupils in sports colleges was below the national average in A*-C grades (Ofsted, 2001). Overall, in line with West et al, Ofsted found that the improvement in GCSE scores was slightly greater than the national rate. In his 2003 report Jesson (2003a:4) claimed:

'In absolute terms, 54.1% of pupils at 656 specialist schools achieved five or more A to C grades at GCSE compared with 46.7% in the other 2342 non-specialist schools.'*

Comparisons in terms of raw examination results are not appropriate because they fail to take account of students' prior attainment and family and personal background characteristics that affect attainment but are outside the control of schools. Comparisons of school performance should be done in 'value added' terms – that is taking account of these factors. This is widely accepted. However, even evidence on value added has prompted fierce debate between David Jesson, who has produced positive evaluations of the superior examination performance of specialist schools on behalf of the Specialist Schools Trust (now the Specialist Schools and Academies Trust) and other researchers. The main issues in this debate will be reviewed here. They are:

- the extent to which students in specialist schools actually perform better in examinations than students in non-specialist schools using value added evidence;
- whether becoming a specialist school is a causal factor in improving schools' examination performance;
- the effect of a school becoming specialist on the performance of neighbouring schools, which would deteriorate if the specialist school recruits a higher proportion of the more able or better motivated students than it did prior to having specialist status;
- the appropriate research methods for deriving conclusions about the first three issues.

In a series of reports commissioned by the Specialist Schools Trust, Jesson (Jesson, 2001; Jesson, 2002b; Jesson, 2003a), has claimed that statistical analysis of secondary school examination results demonstrates the superior performance of specialist schools. The three reports used similar research methods, so this report will focus on the 2003 report^{*}, in which Jesson (2003a:4) claims:

'On a value added basis, specialist schools had a net value added of +4.5 compared with other schools.'

'These excellent results strongly vindicate the Government's decision to expand the number of specialist schools by at least 2000 by 2006.'

The first of the statements above just reports comparative examination performance of the two types of school, but the second statement purports to draw causal links between observing a difference in performance between two types of school and then concluding the difference in school type *causes* superior performance, when other variables, not included in the analysis, could have been responsible for differential performance. It is invalid to infer a causal effect from such evidence, as is well known methodologically. This is one of the major criticisms of Jesson's conclusions made by other researchers, (Goldstein and Schagen, 2002; Paterson, 2002; Schagen and Goldstein, 2002).

Nevertheless, the government has used Jesson's conclusions to support its argument for expanding the specialist schools programme. For example, the White Paper, *Schools: Achieving Success* (DfES, 2001) pp. 39-40, states that:

'Specialist schools are a key part of our proposals for a more diverse system because of their proven success, as demonstrated by research by Professor David Jesson which shows specialist schools adding more value to their pupils' achievements.'

It is therefore necessary to examine more closely the methods Jesson used in his research, critiques of his methods and the evidence from research using a different statistical approach.

Methods for estimating value added by schools

The main difference between Jesson's approach and the few other studies done on specialist schools' exam performance is that Jesson uses data for the average exam performance of the school's students while the other studies use both pupil level and school level data. One aspect of the debate, conducted in the pages of the British Educational Research Association's publication, *Research Intelligence* (2002), is whether the greater complexity of the second method, known as multilevel modelling,

^{*} The most recent report was published in January 2005. See Jesson and Crossley (2005)

is worthwhile. Jesson and Gorard (Gorard, 2002; Jesson, 2002a; Jesson, 2003b) argue that because the evidence is important for school accountability and for policy making it has to be communicated clearly to non-statisticians and therefore the simpler method, known as Ordinary Least Squares (OLS), which can only cope with one level of data – either the school level or the pupil level - should be used because its results can be more easily explained. In opposition, Goldstein, Schagen and Paterson, (Goldstein and Schagen, 2002; Paterson, 2002; Schagen and Goldstein, 2002) maintain, rightly in our view, that the superior statistical properties of multilevel modelling are demonstrated by mathematical proofs. Multilevel modelling needs to be used when data are hierarchical, as when pupils belong to classes, which belong to schools and the class or school the pupil attends has a common effect on all pupils in that class or school. By not allowing for this common class or school effect, the OLS method may produce results that appear to be statistically significant only because they have not correlated for the common effect of the class and school on its members. These researchers also maintain that it is just as feasible to present the results of multilevel modelling in terms non-statisticians can understand as OLS results. It is misleading to report findings to a general audience that are less accurate than they could be on the grounds of the audience's assumed inability to comprehend a method that is more complex to use though not necessarily more difficult to report in a way that can be understood by the intelligent lay person.

There is no disagreement about the general merits of the 'value-added' approach to measuring school performance, though there is disagreement about how such measures should be used. The standard methodology is to assess a school's effectiveness (in achieving a particular outcome) in terms of how much its pupils' achievement scores are above or below those predicted for pupils with the same prior attainment and other characteristics using data from a large sample of schools. In the case of GCSE exam results, the students' prior attainment is their KS3 or KS2 scores in English, maths and science. While the majority of research has found that prior attainment is the strongest predictor of subsequent attainment, other pupil characteristics, such as gender, ethnicity, mother tongue and social background, also have an effect. In addition, there are school level factors that have been found to predict individual pupils' attainment. In the English context these school context variables include the proportion of students who are eligible for free school meals and whether the school is selective, single sex or denominational. The last three variables are associated with higher exam results and the free school meals percentage with worse exam results.

The value added to pupils' exam results is estimated by fitting a regression equation in which the exam results are a function of all the other variables, such as those listed above, which predict or explain the exam results. Therefore, if Y is GCSE exam performance, the estimated equation is of the form:

$$Y = a + b_1X_1 + b_2X_2 + \text{other variables} + e$$

The term 'a' is just a constant which will be the exam mark before any other 'effects' come into play; X_1 is prior attainment (e.g. KS2 results) and X_2 could be gender and one can include lots more variables measuring the pupils' background characteristics and the school context (e.g. free school meals). The last term, e, is the error term. It is estimated for each pupil and it is the amount by which the pupil's actual exam results differ (by a positive or negative amount) from the result predicted by the estimated regression equation, given the pupil's prior attainment, gender, etc and the school's context variables. The error term is also known as the residual.

To estimate a school's value added it is necessary to average the residuals for all its pupils. If the average residual is statistically significantly different from zero (Goldstein, 1997) then one can conclude that the school is effective (if it has a positive 'value added' because its residual is positive) or is ineffective (if it has a negative residual). Estimations of value-added need to be interpreted with care. Even if a school or a type of school, such as a denominational school, has a consistently higher value added than other schools or school types this may not be due to effects attributable to the school itself. It may be because the school selects or is selected by students with characteristics on which the study had no data but which have a positive effect on attainment, such as parental support for education.

Jesson uses the value added method to assess whether specialist schools 'add more value' than non-specialist schools, using data for all English non-selective secondary schools. He does this by calculating the average value of the residual for specialist schools (which is 3% more students with 5 plus A*-C GCSEs than predicted by his regression equation) and also the average residual for non-specialist schools (which is 1.5% less than predicted). Hence the difference between the two 'value added' measures is 4.5% in 2002. So on average specialist schools obtained 4.5% more students with 5+ A* to C grades at GCSE than predicted compared to non-specialist schools in 2002.

Jesson also used another measure of GCSE performance in his 2003 analysis, which is the total GCSE/GNVQ points score for the best 8 subjects. The difference between the predicted total points score and actual total points for students with different ranges of KS2 scores are compared for specialist and non-specialist schools: the former perform better. Regression equations for this measure are not reported and so the statistical properties of the results cannot be assessed.

There are number of problems with Jesson's approach. The first is that he omitted many of the variables, particularly school context variables, which affect exam results. He included only prior attainment and the proportion of boys. In particular, he omitted the proportion of students eligible for free school meals which has a marked effect even when prior attainment is included (Levačić and Jenkins, 2004). A second problem is that despite having pupil level data, Jesson used school average measures and the OLS method, not multilevel modelling, and so may have underestimated the margin of error of his value added figures.

A further issue is whether the percentage of students gaining 5 or more A* to C passes is the appropriate measure on which to focus, as Jesson argues (House of Commons Education and Skills Committee, 2003) rather than the GCSE total points score. The percentage of students with 5+ A* to C grades does not take account of the range of a school's achievement at both the upper and lower grades. It can be influenced unduly by the extent to which a school targets pupils at the C/D borderline for additional attention. Also the measure gives rise to an impression of greater differences in performance between schools than further consideration warrants. A difference of 5% in the proportion of pupils getting 5+ A* to C grades can mean for an average sized year group of 200, 10 more students getting C rather than D.

The few other studies of specialist school examination performance undertaken have used pupil level data and multilevel modelling and focused on total points score (since this is a more appropriate measure of the exam performance of the individual pupil than 1 or 0 depending on whether or not 5+ grades A* to C have been obtained).

The NFER study (Schagen et al., 2002, Schagen and Schagen, 2003) on specialist and faith schools used multilevel modelling with both pupil and school level variables included. Separate estimates were done of value added to KS3 and GCSE results in 2000, using KS2 and KS3 respectively as prior attainment measures. Free school meals entitlement was included as a school context variable. A small positive effect was found for specialist compared to non-specialist schools of 1.5 GCSE grades for language colleges, around 1 grade for arts and technology colleges and zero for sports colleges. At Key Stage 3 a difference of 0.06 and 0.04 levels was found for language and technology colleges respectively and virtually no difference for arts and sports Colleges. This study found that high ability/ prior attainment pupils did slightly better compared to other pupils in specialist than in non-specialist schools.

In another NFER study undertaken for the National Audit office, Benton et al (2003) fitted a multilevel model with many additional explanatory variables for KS3 and KS4 attainment in 2002. They found that specialist schools added one sixth of a level at KS3 on average compared to non-specialist schools and 0.84 grades at GCSE/GNVQ.

Levačić and Jenkins (2004) have analysed data for students who took GCSE/GNVQs in 2001 in order to compare the effectiveness of schools that were specialist by September 2000 with non-specialist schools. The data covered 2995 English secondary schools. A multilevel model was fitted at three levels – pupil, school and LEA. GCSE results at pupil level are explained by the pupils' KS2 test scores taken in 1996, the pupils' age and gender, as well as school type, size, presence of sixth form and percentages of pupils with SEN, who are non-white, have English as an additional language and are eligible for free school meals. GCSE results are measured in three ways – the total score for all subjects taken, the grade for specialist subjects and the probability of a student obtaining 5 or more A* to C grades at GCSE/GNVQ.

Specialist schools on average are estimated to have added 1.4 grades to a student's GCSE/GNVQ total score compared to non-specialist schools. Differentiating specialist schools by length of time they had been specialist and type of specialism showed considerable differences in their performance. Schools that had been specialist for 5-7 years added 3 more grades to boys' total GCSE/GNVQ score (1.8 for girls), whereas schools that had been specialist for 1 to 4 years added only one grade for boys and 0.6 for girls.

Technology specialist schools of 5-7 years standing were considerably more effective than language schools of the same duration (adding 3.25 grades to boys' total GCSE/GNVQ score compared to 1.3). Language and arts schools of 1-4 years standing were no more effective in overall GCSE performance than non-specialist schools. However, sports colleges, though only designated from 1-4 years, were found to be more effective, raising boys' overall performance by 1 grade and girls by half a grade. This finding is in contrast to other studies, which have reported poorer performance by sports colleges relative to other specialisms.

More detailed analysis, including interaction effects between specialist status and other factors, provides evidence about the relative effectiveness of specialist schools for different kinds of pupils. By and large the specialist schools narrowed the gap between boys' and girls' performance. This was the case for all specialist schools taken as a group and when differentiated by length of time specialist and type of specialism. In terms of total GCSE/GNVQ score, more able pupils did relatively better than less able pupils in specialist schools, though all ability levels had higher grades. Specialist schools therefore increased the differential at GCSE between high and low

ability pupils. In terms of the probability of gaining 5 or more A* to C grades, average ability pupils gained most from attending a specialist school. While an average ability boy increased his chances of 5 or more good GCSE /GNVQs by 2.9%, a boy in the bottom 17% of KS2 scores only increased his chances by 0.6%. However, specialist schools with higher proportions of pupils eligible for free school meals (FSM) were more effective than non-specialist schools with similar FSM proportions.

All the studies, apart from Jesson's, have pointed out that the fact that specialist schools have slightly higher estimated value added is not evidence one way or the other for whether making schools specialist will *cause* their examination results to improve. For example, DfES (2002c:5) explains: *'since it does not take into account all the possible characteristics of pupils, the bulletin should not be read as showing causal relationships'*.

Estimating the value added of specialist schools relative to non-specialist schools cannot adequately test whether becoming specialist is a policy treatment that makes a school more effective. This is because specialist status has not been distributed randomly across schools. Instead schools have been selected to become specialist. It is very likely that a higher proportion of more effective schools have been selected into the specialist schools 'treatment' group than exist in the school population as a whole. Any measured superior effectiveness would not then be caused by the school becoming specialist but is due to its being a more effective school to start with and hence more likely to become specialist. To demonstrate statistically that specialism is the cause of greater school effectiveness one would need to be able to explain the probability of becoming specialist by factors that are independent of the school's value added performance before becoming specialist. This is a tall order and has not yet been undertaken. In the meantime, the Government has continued to announce that the performance of specialist schools is outstripping non-specialist schools. Performance tables published in January 2004 indicated that 56.7% of pupils in specialist schools achieved five good GCSE/GNVQ grades compared to 49.2% in non-specialist schools – a difference of 7.5 percentage points (DfES, 2004a).

The latest report from the Specialist Schools and Academies Trust (Jesson and Crossley, 2005) confirms the findings of the previous reports, that is, using the 'value-added' analysis, specialist schools in 2004 provided added value of around 1.8%, whereas non-specialist schools 'subtracted' value at around 1.8%. However, it is still not demonstrated that it is specialist status *per se* that delivers this premium, rather than other factors. That is, the more effective schools are more likely to achieve specialist status, and thus the residue of non-specialist schools is likely to contain a high number of failing schools or those with serious weaknesses. This is more likely to be the case as more schools opt to become specialist.

Conclusion

Is diversity in itself important?

Much of what has been presented as evidence about diversity is, in fact, assertion based on opinion and anecdote, rather than on research. Evidence presented to the Education Select Committee by Prof. James Tooley cited information about diversity of provision, school choice and voucher systems in a range of countries and extrapolated from that evidence the assertion that such initiatives, if transplanted to the English context, would raise standards, promote equity and increase parental satisfaction. However, the evidence for the positive impacts of increased diversity is weak, and it has not been demonstrated that such impacts are easily transferable

from one educational culture and system to another. Prof. Richard Pring also provided a memorandum and gave evidence to the Committee. In his opinion, the impacts of diversity had been negative rather than positive. He suggested that increased specialisation and choice diminished choice for some families, mainly those who are already disadvantaged. Research by Coldron *et al* (2001) seems to support this thesis. They found that, in some areas, there had been a 'polarisation' of schools because of league tables and parental perceptions of 'good' and 'bad' schools. They found that, in one LEA, with some partially selective foundation schools, the remaining community schools were being expected to take the most severely disadvantaged pupils (those who had been excluded from other schools and children 'looked after' by the local authority). The over-representation of pupils from disadvantaged backgrounds in these schools made it more difficult for them to improve their reputation among parents. Prof Pring stated that:

Diversity is, in fact, creating a hierarchy of schools, colleges and academies, with different funding bases, thereby creating increasing disadvantages for those already disadvantaged who are unable to choose better resourced schools. (Education and Skills Committee, 2003: Ev4)

In his memorandum, Prof. Pring also argued that the extension of 'faith' schools, as part of diversity, had the potential to divide schools along ethnic and racial as well as religious lines. The Committee endorsed this view, saying in its report:

We welcome the Government's more balanced approach to the promotion of faith schools, and urge extreme caution in any future expansion of the faith sector....Future developments in this area should guard against the creation of ethnically segregated schooling (ibid, p. 22).

Do specialist schools achieve better results?

The current body of evidence about specialist schools is equivocal about their impact. It is clear that the majority of specialist schools are highly effective (four fifths of the Ofsted survey were judged to be so). But whether this is due to their selection practices (overt and covert), or to their being already highly effective in order to obtain specialist status, is not clear. As pointed out elsewhere in this report, there is no proven causal link between the improved performance of these schools and their specialist status. In addition, no research has been reported which has attempted a cost-benefit analysis of specialist schools (i.e. what has been the extra cost of improving GCSE scores in these schools, and how does this compare to the cost of improving GCSE scores in non-specialist schools).

However, the evidence from the research is reasonably consistent in finding that pupils at specialist schools do slightly better at GCSE and KS3 than pupils with similar characteristics that we have data for at non-specialist schools, after controlling for differences in school context. The size of this 'specialist schools effect' is estimated to be around 1– 2 GCSE grades. The preferred method for estimating value added on statistical grounds is multilevel modelling.

The research evidence on the slighter higher value added performance of specialist schools cannot be used to infer causality. It may well be that specialist schools are those that were more effective to start with, which is why they were selected to become specialist. Another factor, given the covert and overt ability of specialist schools to select pupils, is that better motivated pupils with more aspiring and supportive parents choose to go to specialist schools and are more likely to be selected by them. The data we have on pupil characteristics, such as prior attainment, ethnicity and free school meals, are very imperfect proxies for these important home background and personality factors. One of the strengths of the multilevel approach is that it estimates the proportion of the unexplained variation in exam results (the amount the regression equation has not explained) that is at pupil level, school level and LEA level. In the study by Levačić (2004) 92% of the unexplained variation in examination results is at pupil level and only 7% at school level. This implies that for a really big impact on attainment, education policy would need to exert leverage on families' and young peoples' attitudes and motivations. Schools are of course an easier target for politicians anxious to appear actively engaged with social problems than are homes and minds.

Is current policy on specialist schools based on sufficiently robust evidence?

In a speech given by the Secretary of State on 10th February 2003, it was stated that the Government envisaged a 'new specialist system'. According to this speech, the new specialist system would be one in which:

Every school has a centre of excellence, available to every pupil in the school and as a resource for other pupils in the area....A specialist system works by spreading the lessons from excellent provision across the school and across the system.

The speech predicted that 38% of secondary schools would have specialist status by the end of 2003 (in fact achieved by February of that year) and that the government intended that there would be 2000 specialist schools by 2006. Some of the new specialisms to cover the whole range of the curriculum were announced in that speech, together with plans to introduce a rural dimension into relevant specialisms for schools in rural areas.

Collaboration and sharing of expertise was a key theme in the speech, and a number of ways of increasing collaboration were described, including federations of schools. It remains to be seen whether these changes in the scope and ethos of the specialist schools programme will mitigate some of the negative effects of the policy described above.

Overall, the evidence base for examining the operation and impacts of specialist schools is quite limited. As the House of Commons Education and Skills Committee point out in their 2003 report:

The key finding of our inquiry is the lack of sufficient research evidence to indicate whether the choices the Government is making in secondary education policy are based on secure foundations. There has been very little research on the impact of specialist schools on their neighbouring schools; the government has placed too much emphasis on a narrow range of research on the comparative performance of specialist schools; and we have found the 5 A-C indicator for attainment at 16 to be an inadequate and misleading measure of pupil achievement. (2003:3)*

Not only has there been little definitive evidence of the impact of the creation of specialist schools on other schools in their areas, but there are indications of increased social polarisation in some areas. The requirement on 'Leading Edge' schools, specialist schools and Academies, to act as a catalyst for school improvement across their local areas, will, perhaps, diminish the tendency of schools to become polarised.

Schools continue to apply for specialist status, and presumably anticipate benefit from achieving this. The evidence for successful outcomes of specialist status remains open to debate but if the success were to be established, one could argue that a whole generation of pupils who will not be educated in such schools, until those schools meet the criteria, will have been disadvantaged.

The House of Commons Education and Skills Committee's fifth report for the session 2004-05 (House of Commons, 2005) articulates some of the on-going concerns of the committee about the direction of government policy as published in the *Five Year Strategy for Children and Learners* published by the Government in 2004. This latter document made the following proposals:

- All schools should be encouraged to become 'independent specialist schools' and to adopt foundation status by a simple vote of their governing body.
- A change in the system of school funding to allocate money directly to schools, taking control of the budget away from Local Authorities.
- Encouraging more schools to develop sixth forms
- Encouraging popular schools to expand
- Creating partnerships of schools to share expertise and 'hard to teach' pupils.

The Education White Paper (DFES 2005) suggests that successful schools can become 'Trusts', and achieve a high measure of independence from LEAs, and that the most successful specialist schools will work with less successful schools in order to boost their performance. The thrust of current government policy, partly in response to some of the concerns expressed about the potential impacts of the 'choice and diversity' agenda, of which specialist schools are a part, is to emphasise the collaborative aspects of the specialist schools' mission and to put in measures to

support choice for less affluent parents, so that they would get financial help with travel costs to a school of their choice. The aim is now for every secondary school to become a specialist school.

The concerns raised by the Education and Skills Committee about these further developments, as described in the *Five Year Strategy* document, in relation to specialist relate primarily to the lack of concrete evidence about what aspects of the policy contribute to raising standards in schools. The committee states:

Without being able to weigh the relative importance of the factors involved in the achievements of specialist schools, the Government cannot be assured that the roll out of this programme will have the desired results, or that the success of the current groups of specialist schools will be replicated elsewhere (p. 12).

The Committee also expressed concern about the proposals for all schools to become foundation schools, as this would exacerbate the problems that parents have in securing a place for their child in the school of their choice. Their fear is of 'an admissions free for all'.

The Government's response to the report was a robust defence of current policy and the achievements of specialist schools. They rejected many of the criticisms and fears expressed by the Committee and confirmed that:

Within 2 years we will have a fully specialist school system, where every school which wishes to and which meets the standard will have at least one specialism. Particularly in urban areas, this will offer greater choice so that parents can choose a school which suits their child's strengths and interests. Specialist schools raise improvement in their own schools, but there is also increasing evidence of collaborative working to share expertise in their specialism across schools. The development of second and vocational specialisms, with reference to the pattern of provision already available in each area, is further extending choice. We want every school to improve, so parents have a choice amongst good, local schools with different specialisms. Education and Skills Committee (2005).

Recent developments in Government policy, then, have done little to address some of the concerns expressed by researchers and commentators about some of the negative impacts of the specialist schools policy, in particular its impacts on less articulate and less mobile parents living in areas where there is a hierarchy of schools. It has not been demonstrated, up to now, that the goal of an 'excellent secondary school in every community' will be achieved by means of the specialist schools policy.

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