



Leading education
and social research
Institute of Education
University of London

Primary and secondary education and poverty review

**Roxanne Connelly, Alice Sullivan and
John Jerrim**

August 2014



Centre for Longitudinal Studies
Following lives from birth and through the adult years
www.cls.ioe.ac.uk

CLS is an ESRC Resource Centre based at the Institute of Education, University of London



Primary and secondary education and poverty review

**Roxanne Connelly, Alice Sullivan and
John Jerrim**

August 2014

First published in 2014 by the
Centre for Longitudinal Studies
Institute of Education, University of London
20 Bedford Way
London WC1H 0AL
www.cls.ioe.ac.uk

© Centre for Longitudinal Studies

ISBN 978-1-906929-82-4

The Centre for Longitudinal Studies (CLS) is an ESRC Resource Centre based at the Institution of Education. It provides support and facilities for those using the three internationally-renowned birth cohort studies: the National Child Development Study (1958), the 1970 British Cohort Study and the Millennium Cohort Study (2000). CLS conducts research using the birth cohort study data, with a special interest in family life and parenting, family economics, youth life course transitions and basic skills.

The views expressed in this work are those of the author(s) and do not necessarily reflect the views of the Economic and Social Research Council. All errors and omissions remain those of the author(s).

This document is available in alternative formats.
Please contact the Centre for Longitudinal Studies.
tel: +44 (0)20 7612 6875
email: info@cls.ioe.ac.uk

Contents

Chapter 1: The nature and causes of disadvantage in primary and secondary education.....	4
Chapter 2: Educational systems.....	10
Chapter 3: School structures and school composition.....	25
Chapter 4: School and teacher quality.....	36
Chapter 5: Specific interventions.....	51
Chapter 6: Summary of findings and implications for policy and practice.....	62
Bibliography	65

Chapter 1: The nature and causes of disadvantage in primary and secondary education

This introductory chapter sets out to provide some context, and answer the following questions. To what extent and why are poor children disadvantaged in education? What are the aspects of home background related to poverty that matter? Are there important intersections with other social characteristics such as ethnic group and gender? What is the role of geography, including differences between the four UK countries? How do trajectories of disadvantage emerge across the school life course?

Poverty is very strongly linked to low attainment in school. Department for Education figures (Department for Education 2012) show that 35% of children in receipt of Free School Meals (FSM) gained five A*-C grades including English and maths, compared with 62% of other children (non-FSM and unknown FSM status combined).

The validity of FSM eligibility as a proxy for income poverty is questionable (Hobbs & Vignoles 2010). But we can also question the extent to which a binary representation of income over-simplifies the picture. People are usually defined as being in poverty if their income is less than 60% of the UK median. This is a binary category with a 'poor' minority and a 'non-poor' majority. Yet we know that children's educational chances vary incrementally across the socio-economic distribution. This is an important point if we want to understand the reasons for socio-economic differences in educational attainment – advantage at the top is just as important to the overall picture as disadvantage at the bottom.

Sources of disadvantage

So, why are poor children disadvantaged? While there is a strong association between poverty and low educational attainment, social inequalities in educational outcomes are not simply due to income or income poverty. Sociologists often explain social class differences in educational attainment in terms of three forms of capital: economic capital, social capital and cultural capital.

Clearly economic resources matter (Cooper & Stewart). Despite the introduction of universal free and compulsory schooling, financial resources still give an advantage in pursuing educational attainment. Well-off parents can afford better schools for their children, by buying either private schooling or housing in a good catchment area. In addition, many pupils receive private tuition (Ireson & Rushforth 2004). Living in poor or overcrowded housing is linked to poor health and lower attainment (Bartley et al. 1994; Douglas 1964b), and school moves due to residential mobility are very negative for attainment (Strand & Demie 2006). Educational resources such as a computer, a room of one's own for study, etc. are costly. Financial resources can also have indirect impacts on the quality of children's environments. For example, poverty leads to stress and depression which affect parenting (Duncan & Brooks-Gunn 1997; Mortimore & Whitty 2000; Whitty 2002).

Parents' social class and educational qualifications are of course fairly closely linked. Parents' education, and the skills, knowledge, dispositions and practices that go with

it, are often described as 'cultural capital'. Bourdieu (1977) states that cultural capital consists of familiarity with the dominant culture in a society, and especially the ability to understand and use 'educated' language. The concept of cultural capital has been interpreted in various ways, but there is a consensus that particular cultural practices which are most common among the educated middle-classes, such as reading for pleasure, are powerfully linked to educational attainment (Crook 1997; De Graaf et al. 2000; Sullivan 2001; Sullivan & Brown 2013). Sullivan and Brown (2013) find that reading for pleasure in childhood is linked to substantially greater cognitive gains during the secondary school years than having a parent with a degree. We have found no evidence on school library provision or programmes to promote reading for pleasure, and these may be promising avenues for future research, given the importance of reading for pleasure for children's attainment. Robust evaluation evidence of such programmes is needed. At the opposite end of the spectrum, where parents lack basic literacy and numeracy skills, this has implications for children's learning (Bynner & Parsons 2006). The proportion of the UK adult population with poor basic skills is a longstanding policy concern (Moser et al. 1999).

Social capital relates to the relationships between people in families, schools and communities. It describes 'features of social organisation, such as trust, norms and networks'(Putnam 1993) and, with regard to education, it refers to 'the set of resources that inhere in family relations and in community social organisation and that are useful for the cognitive or social development of a child or young person' (Coleman, 1994, p. 300). This could include strong support for education, high aspirations, and strong links between families and schools. Single-parent families and families with large numbers of siblings, as well as families where the parents are working long hours or have physical or mental health problems, can be seen as disadvantaged in terms of social capital. Problems within families and communities mean that schools serving deprived communities often deal with extra challenges including discipline and welfare issues (Lupton 2005). Thus, schooling is part of the picture, but it is vital to acknowledge the context in which schools serving poor communities operate.

Low aspirations are often assumed to be an important mechanism linking socio-economic disadvantage to poor educational attainment, but there is surprisingly little robust evidence to support this view (Gorard et al. 2012). The assumption of a 'poverty of aspirations' among disadvantaged young people and their families has been disputed by several small-scale qualitative studies (Lupton & Kintrea 2011). Quantitative evidence supports this challenge to the orthodoxy. The Millennium Cohort Study mothers had almost universally high aspirations for their seven-year-olds, with 97% saying that they wanted their child to attend university (Hansen & Jones 2010). This figure of 97% was the same for poor and non-poor households. Of course, these high aspirations may well decline over time, but it seems that low aspirations may be better understood as an outcome rather than a driver of experiences in the education system.

In practice, economic, cultural and social capital are often linked, and the most disadvantaged children may be lacking in all three of these domains. But it is important to acknowledge that this is not always the case, and some children from lower income backgrounds will have strong compensating resources.

The literature on disadvantage and education is multidisciplinary, and we should note at the outset that social scientists from different disciplines tend to capture disadvantage in different ways. Economists typically report on inequalities according to income, while sociologists use social class (based on occupation) and parents' education. Psychologists often use a composite scale of SES (socio-economic disadvantage). When parents' education is considered alongside measures of family economic resources such as income and social class, parents' education is the more powerful predictor of children's attainment (Ganzach 2000; Sullivan & Brown 2013; Sullivan et al. 2013).

Socio-economic disadvantage is also linked to health inequalities, and poor children are more likely to suffer disabilities. Families with disabled children are also more likely to become poorer over time (Parsons & Platt 2013).

The role of genetic differences remains controversial, with gene-environment interactions an additional complicating factor. Recent research has found only a modest role for the leading candidate genes in explaining socio-economic differences in children's reading ability, accounting for only 2% of the gap. However the authors acknowledge that this research field is in its infancy (Jerrim et al. 2013).

Class, gender and ethnicity

Certain minority ethnic groups are disproportionately likely to be economically disadvantaged, with particularly high poverty rates among the Bangladeshi and Pakistani groups. Nevertheless, evidence suggests that poor ethnic minority children are not the most disadvantaged group at school. Among low SES children, whites have lower academic attainment than all other ethnic groups except African Caribbean pupils (whose attainments are similar to those of white pupils) (Strand 2014 (in press)). Strand also points out that, at age 16, the achievement gap associated with social class was twice as large as the biggest ethnic gap and six times as large as the gender gap. Strand's analysis finds no significant interaction between gender and SES, in other words low SES is equally disadvantageous for girls as it is for boys.

Particular concerns have been raised regarding black boys and school exclusions. Black Caribbean pupils are three times more likely than whites to be permanently excluded from school, FSM pupils are four times more likely than non-FSM pupils to be excluded, and boys are three times more likely to be excluded than girls. Pupils with a statement of Special Educational Needs (SEN) were eight times more likely than others to be excluded (DfE 2013). Nevertheless, the rate of permanent exclusions in the school population as a whole is only 7 pupils in every 10,000, so this affects a tiny minority even of the most disproportionately excluded groups and is therefore not a major factor driving inequalities in attainment between groups. It is difficult to assess the extent to which underlying behavioural issues and problems in relationships between teachers and some groups of pupils affect inequalities in attainment.

Concerns have been expressed about 'white, working class boys', stating that the gender gap in school attainment is largest for the working class, e.g. *"the fact that the biggest current gap in performance is between working-class boys and girls makes*

the problem more acute for a Labour government intent on creating an inclusive society"(Guardian Leader 2000). In fact this is simply a false premiss (Gorard et al. 2001b; Sullivan et al. 2011). It is important to bear in mind that white working class boys are primarily disadvantaged because they are working class, not because they are white and male. Women's labour market disadvantage persists despite girls' much vaunted triumph over boys at GCSE. Women's under-representation in 'masculine' subject areas such as maths, science, engineering and technology contributes to this problem, although, women do not achieve the same occupational status as their male peers even when they have the same qualifications. However, the gap between male and female graduates is far smaller than the gender gap for poorly qualified young school-leavers, as the labour market is far more 'gendered' at the lower-skilled end of the occupational distribution (Power et al. 2003). Young women leaving school with no qualifications are particularly disadvantaged compared to their male peers, as unqualified girls have fewer labour market opportunities open to them than unqualified boys do, and vocational training remains strongly segregated by gender (Bynner et al. 1997; Hakim 1996; Power et al. 2003; Rake 2000). For young women, NEET (not being in education, employment or training) is associated with lone parenthood and depression (Bynner & Parsons 2002). There is a danger that the issues facing working class girls will be neglected because of the strong focus on boys.

Geography

There is no very clear evidence of pronounced or systematic regional differences in educational attainment (Goodman et al. 2009). Quantitative studies have failed to show strong effects of neighbourhood characteristics such as area level poverty on educational and other outcomes (Cullis 2008; Flouri et al. 2010; Ford et al. 2004; Leckie 2009; Midouhas 2012; Rasbash et al. 2010b). Lupton (2003) points out that the failure of quantitative analyses to uncover neighbourhood effects does not necessarily imply that place does not matter. Rather, the problem may lie with flawed data, conceptualisation and measurement. By using arbitrary boundaries such as electoral wards, we may fail to adequately capture neighbourhoods. Also, by relying on straightforward measures of area-level poverty, we may fail to measure the things that really matter about neighbourhoods. However, the evidence base at present suggests that family rather than area-level disadvantage is most important.

Childhood disadvantage and the life course

Much attention has focussed on the early years as an important critical period during which children develop vital skills. Evidence from the British Cohort Studies and the Effective Provision of Pre-school Education (EPPE) project has featured heavily in recent debates on educational inequalities. Sylva et. al. (2004) make a strong case for the importance of parenting to early outcomes, stating that '*what parents do with their children is more important than who they are*' (p.5). 'What parents do' is measured in a range of ways, including the 'Home Learning Environment' scale of activities such as reading to the child. Clearly these types of activities matter, but rigorous research evidence does not back the more exaggerated claims on parenting and unequal child outcomes. Ermisch (2008), in his analysis of children's cognitive and behavioural outcomes at age 3, states that '*...what parents do is important*'(p.69)

and helps to account for the income gradient in child outcomes, but by no means explains it entirely. A similar conclusion is reached for outcomes at age 5 by Kiernan and Mensah (2011), who estimate the proportion of the effect of childhood disadvantage which can be accounted for by parenting practices (based on a composite measure) at 40%, leaving 60% that cannot be explained in this way. The authors also point out that figures such as these are sensitive to what is included in the model, and are thus subject to omitted variable bias. Sullivan (2013) points out that parental resources matter as well as parental behaviours, and that these resources are not purely financial but also cultural. Research has demonstrated the importance of parents' cognitive scores and the home reading culture for children's early cognitive scores (Byford et al. 2012). Parenting, characterised by consistently applied rules and regularity has been shown to be linked to positive child outcomes (Washbrook 2011). However, parenting styles cannot fully account for structural inequalities.

The growth in cognitive inequalities according to socioeconomic status during childhood has been established by analyses of the British cohort studies of 1946, 1958, 1970 and 2000 (Douglas 1964a; Feinstein 2003; 2004; Fogelman 1983; Fogelman & Goldstein 1976; Sullivan & Brown 2013; Sullivan et al. 2013). This evidence is extremely important, because it shows that disadvantage is not completely fixed in early childhood, but rather disadvantaged children continue to fall behind their peers throughout the primary and secondary school years.

It is also important to note that socio-economic differences in educational attainment are not driven entirely by differences in attainment at the end of compulsory schooling. Post-compulsory participation is affected by social background above and beyond initial attainment differences. Sociologists call this phenomenon the 'secondary effects of social stratification' (Boudon 1973; Breen & Goldthorpe 1997). Thus there is scope to intervene to reduce inequalities at every stage of schooling.

Coverage of this review

This review is part of a series commissioned by JRF, and is limited in its scope. The review is limited to the school years, and therefore will not cover issues such as pre-school provision or access to Higher Education. These topics will be covered by other reviews. The review is focussed on educational attainment rather than other outcomes. There are a whole range of other potential benefits of schooling, such as wellbeing and civic participation, which are beyond the scope of this review. This review also does not consider the link between educational attainment and labour market outcomes. We certainly do not assume that increasing the educational attainment of poor children is the only or best way to reduce adult poverty, and would note that there is a difference between aiming to promote social mobility and aiming to reduce poverty. The social mobility chances of individual children may well be best increased via educational attainment. However, the overall level of poverty in society is driven by structural inequalities in our economy and society which clearly cannot be addressed simply by reforming schools. Policies intended to promote social mobility will not necessarily reduce poverty, and it is important not to allow the two goals to be confused (Swift 2004).

In reviewing the literature, we have relied heavily on a number of other reviews of the evidence, for example (Gorard & See 2013). We have selectively reviewed the literature covered by previous reviews and brought it up to date where necessary.

We have begun by outlining the nature and causes of disadvantage in primary and secondary education. Chapter 2 considers educational systems. Chapter 3 considers school structures and school composition. Chapter 4 considers school and teacher quality. Chapter 5 assesses the evidence on specific interventions. Chapter 6 summarises our key findings.

Summary

- Socio-economic disadvantage can be measured in different ways. Parents' education has been found to be a more powerful predictor of children's educational attainment than income per se.
- Economic, cultural and social resources are all implicated in educational inequalities.
- Schooling is part of the picture, but it is vital to acknowledge the context in which schools serving poor communities operate, and also that many poor children do not live in poor neighbourhoods.
- Socio-economic gaps in education are far greater than ethnic or gender gaps. Among those from disadvantaged backgrounds, white and African-Caribbean pupils fare the worst at GCSE.
- Socio-economic disadvantage is equally as damaging for girls as it is for boys.
- Research has not revealed any strong area-level or geographical effects on attainment.
- Educational inequalities emerge in the pre-school years, but continue to grow throughout the primary and secondary school years.
- The social mobility chances of individual children may well be best increased via educational attainment. However, the overall level of poverty in society is driven by structural inequalities in our economy and society which clearly cannot be addressed simply by reforming schools.

Chapter 2: Educational Systems

Major changes in the UK education system since the 1960s include the shift from the tripartite system to comprehensivisation; the introduction of the GCSE; the diversification of school types and introduction of parental choice of school; and the introduction of league tables of schools. Is there evidence that changes in the UK education system over time have influenced socio-economic inequalities in education (Gregg & Macmillan 2010; Heath et al. 2013; Lupton et al. 2009)? There is evidence of lower levels of educational inequality in some school systems than in others. Is there evidence that international differences in educational inequalities can be attributed to differences in school systems (Jerrim 2011)? This chapter first considers change over time in the UK, before going on to consider international differences.

Change over time

This section draws heavily on Heath et al. 2013.

From 1944 to the mid 1960s, Britain had a 'tripartite' system of grammar schools, technical schools and secondary modern schools (Heath 2003). Grammar schools had an academic curriculum, technical schools a vocational curriculum, and secondary moderns, which catered for around 80% of young people, offered basic schooling typically leading to leaving school at the minimum leaving age. There has been a great deal of analysis of the move to Comprehensive education using the 1958 National Child Development Study (NCDS) (Cox & Marks 1980; Fogelman 1983; Heath & Jacobs 1999; Kerckhoff et al. 1996; Kerckhoff & Trott 1983; Marks et al. 1983; Steedman 1980; 1983a; b). The main conclusion to be drawn from this work is that Comprehensivisation made less difference to inequalities or standards than had been hoped by its advocates or feared by its critics. While some commentators have suggested that purported declining social mobility in the UK is due to the abolition of Grammar schools, this is challenged by Boliver and Swift (2011) who show that, among the NCDS children, the assistance to working class children provided by the grammar schools was cancelled out by the hindrance suffered by those who attended secondary moderns. Recent evidence (Macmillan 2014) suggests that income inequalities in adulthood were exacerbated in LEAs (Local Education Authorities) providing a selective system.

The comprehensive system was never introduced universally, with many grammar schools remaining, and Kent retaining the selective system in full. Private schools have of course continued throughout. The Conservative government elected in the 1980s introduced various reforms that could be seen as unravelling comprehensivisation. Schools were allowed to opt out of local authority control and measures to introduce competition between schools were introduced. The Blair government, elected in 1997, continued this drive towards increased differentiation and selection at 11+. The 'specialist school' initiative (originally introduced by the Conservatives) was expanded. Schools are allowed to select a proportion of their students according to 'aptitude'. The expansion of 'faith schools' run by religious bodies has also been encouraged. Since the 1980s, governments of both parties have shared a common core of education policy, consisting of the two principles of accountability (league tables) and competition.

At different times and to different degrees, collaboration and mutual support between schools has also been encouraged.

Changes in educational standards?

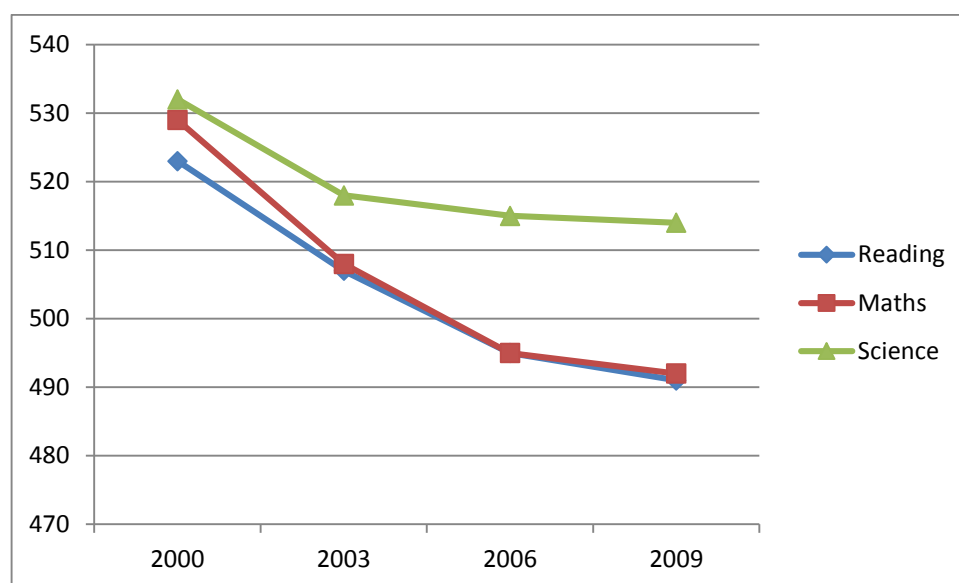
Poor children may be helped by policies which increase standards across the board (even if they do not narrow the gaps between rich and poor), so it is useful to consider the debate over whether educational standards have been rising or falling over time in the UK. Official statistics have documented increased attainment over time in secondary schooling, with an accelerated growth in credentials achieved at 16+ after the introduction of the GCSE in 1988. Key stage testing was introduced in primary schools in 1991 for seven year olds and 1995 for 11 year olds, with dramatically rising levels of pupils gaining the 'expected' levels of attainment from 1995-2011.

However, it is difficult to assess to what extent this dramatic improvement reflects real progress in pupils' learning. The assessment standards may have changed over time, and improvements may simply reflect teaching to the test or other strategies to enhance notional performance. The essence of the problem is that test results are used for constructing school league tables and therefore introduced incentives for schools to find ways to present themselves in a favourable light. Their use for league tables therefore potentially undermined their value as measures of real change in attainment. In the case of GCSEs, arguably, the combination of the pressures of league tables with competition between examination boards for schools' custom made grade inflation likely.

Changes in educational standards – independent studies

The recent New Labour administration increased investment in schooling substantially as a proportion of GDP, as well as introducing various initiatives, so one may expect some improvement based on this. However, claims regarding educational standards during this period have been controversial. The main independent studies available, and the ones which Conservative critics of New Labour have cited, are those of the various cross-national programmes such as OECD's Programme of International Student Assessment (PISA). PISA involves standardized tests in literacy, science and maths taken in the last year of lower secondary education, that is in year 11 (typically age 15). Figure 1 shows the scores for the UK in the four rounds of PISA that have been conducted so far. These scores are standardized ones, with the OECD average set to 500. They do not therefore tell us whether standards have increased in absolute terms (which is what the KS2 results reported in previous section purported to measure) but only how a country is performing relative to the OECD average.

Figure 1: UK test results in reading, maths and science: PISA



Source: PISA 2009 Results: What Students Know and Can Do: Student Performance in Reading, Mathematics and Science (Volume I) OECD).

The headline figures for PISA do show a decline in literacy, maths and science in the UK, relative to other countries, between 2000 (the first round of PISA) and 2009. As Jerrim (2011) points out, this is particularly sensitive politically as children who were tested in the first wave in 2000 would have had most of their (compulsory years) education under Conservative governments while those tested in 2009 would have had most of their education under Labour.

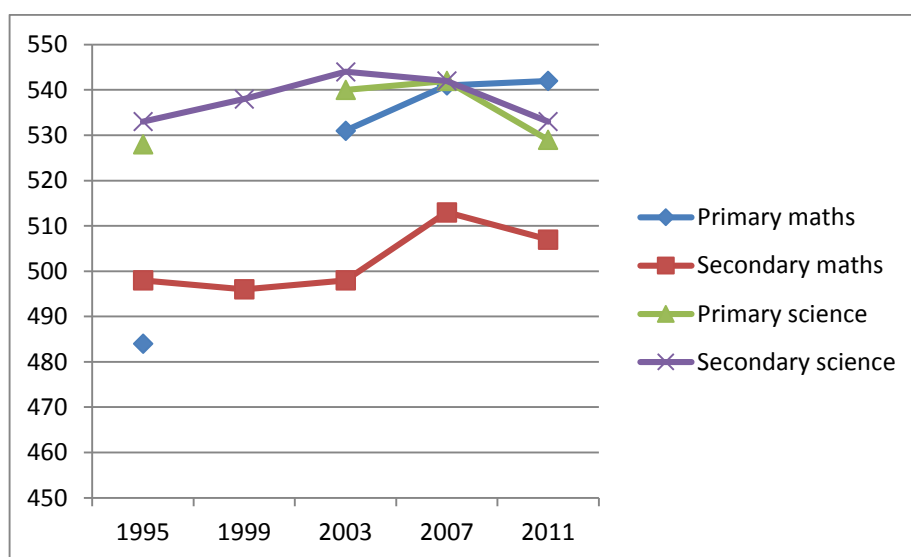
There are however considerable problems in drawing conclusions from these trends. These data have been subject to detailed methodological investigation by Brown et al (2007) and Jerrim (2011). Firstly, according to the OECD, the 2000 and 2003 samples for the UK did not meet the PISA response rate standards, and are therefore not suitable for comparison. Low response might well be associated with response bias, with participating schools perhaps being relatively successful ones. This bias may have reduced over time as response rates improved.

Probably even more importantly, there was a major change in England in 2004, but not in the other countries, in the timing of the tests during the school year. In the first two rounds the tests were conducted between March and May in schools. This was changed in England for the 2007 and 2009 waves to November/December of the same school year, that is five months earlier. This was an understandable change as schools and their students are under considerable pressure later in the year because of preparation for taking GCSEs (other countries not having high-stakes testing in year 11). Moving the test to earlier in the school year might well account for the improvement in school response rates. But it also means that English children sitting the tests in the two latest waves will have had around half a year's less schooling than their peers in other countries. It would be odd if this was not associated with a decline in observed English students' performance relative to other countries.

So, just as we are sceptical of Labour's claims that standards rose substantially over their period in office, we are sceptical of Conservative claims based on PISA that standards, relative to those in other countries, fell. Moreover, as Jerrim points out, this decline is not replicated in other cross-national programmes of student testing such as the Trends in International Mathematics and Science Study (TIMSS). TIMSS is a programme developed by the International Association for the Evaluation of Educational Achievement (IEA) which tests children in years 4 and 8. Five rounds of testing have been carried out so far, and in contrast to PISA the results show little change or perhaps a small increase. Figure 2 shows the headline trends for England and Wales.

The contrast between the improvements in maths attainment in TIMSS and the marked decline in PISA is surprising. Jerrim points out that it is unusual cross-nationally for there to be such a large discrepancy between the changes estimates from the two sources. It is hard to think of substantive reasons why, for example, maths performance in years 4 or 8 should be improving while in year 11 it should be declining.

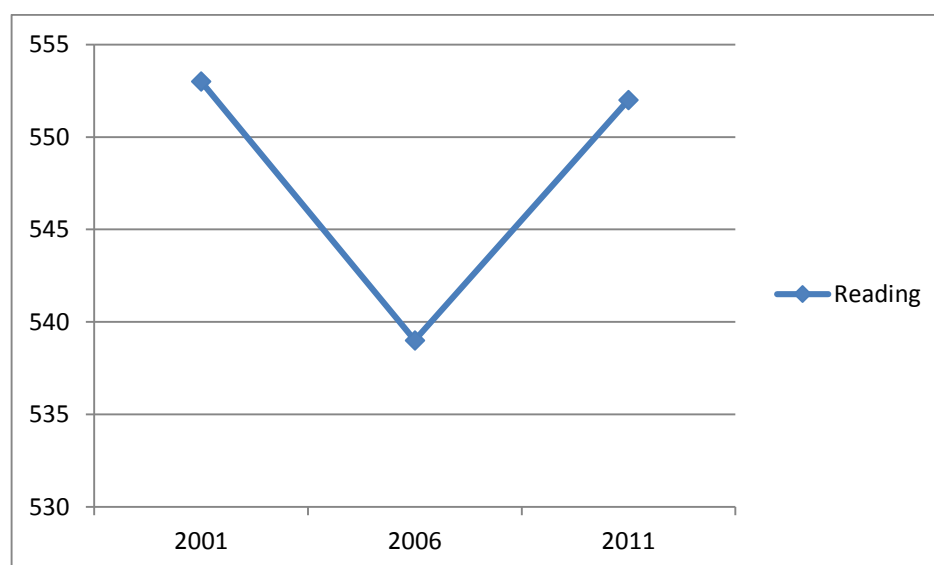
Figure 2: England's scores in Maths and Science 1995-2011. TIMSS



Source: Martin et al (2012), Mullis et al (2012).

A third study that we can draw upon is the Progress in International Reading Literacy Study (PIRLS). This is another study developed by the IEA and tests the reading literacy of students in year 4. Like PISA and TIMSS scores are standardised.

Figure 3: England's scores in reading literacy 2001-2011, PIRLS



Source: Mullis et al (2012)

As we can see from Figure 3, the three rounds of PIRLS shows a decline between 2001 and 2006 followed by a gain, leading to no trend overall, and suggesting the need for caution in interpreting the ups and downs in test scores. The safest conclusion is that there has probably been little change in British standards.

Much UK education policy has been driven by concerns about basic skills. Machin and Vignoles (2006) present evidence from the 1995 International Adult Learning Survey that, whereas in some countries, the youngest workers had the highest levels of basic skills, this was not true in the UK, despite increased investment in the education system.

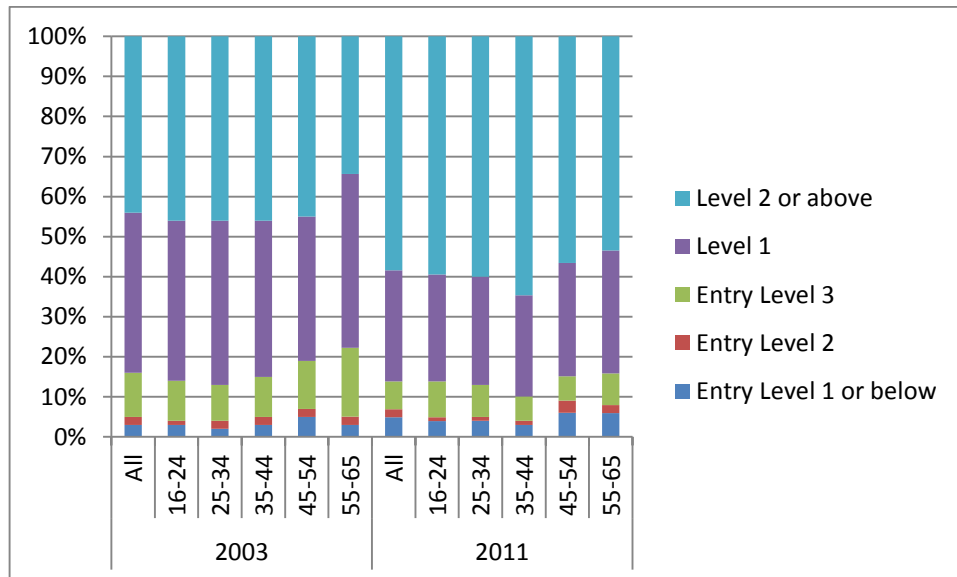
The latest Skills for Life survey (Department for Business Innovation and Skills 2012) allows us to assess whether the youngest cohort, educated under New Labour, performs better or worse than its elders in terms of basic skills. The literacy and numeracy assessments used in the 2003 and 2011 Skills for Life surveys were identical, allowing scores to be compared across the two surveys, so we can also compare the youngest cohort in 2011 to young people of the same age in 2003. Unfortunately, the Skills for Life reports do not provide an analysis of whether inequalities between socio-economic groups have narrowed over time.

Literacy

Level 1 is considered to represent functional literacy, and is approximately the level expected of an 11 year old (National Audit Office 2008). Those scoring below level 1 (at entry levels 1-3 or below) may not be able to write short messages. There was no marked change overall in the proportion of respondents who failed to achieve functional literacy in the 2003 survey (16%) and the 2011 survey (15%). However, there does appear to have been a substantial rise in the proportion achieving level 2 or above, which is designed to be roughly equivalent to a GCSE A-C grade (from

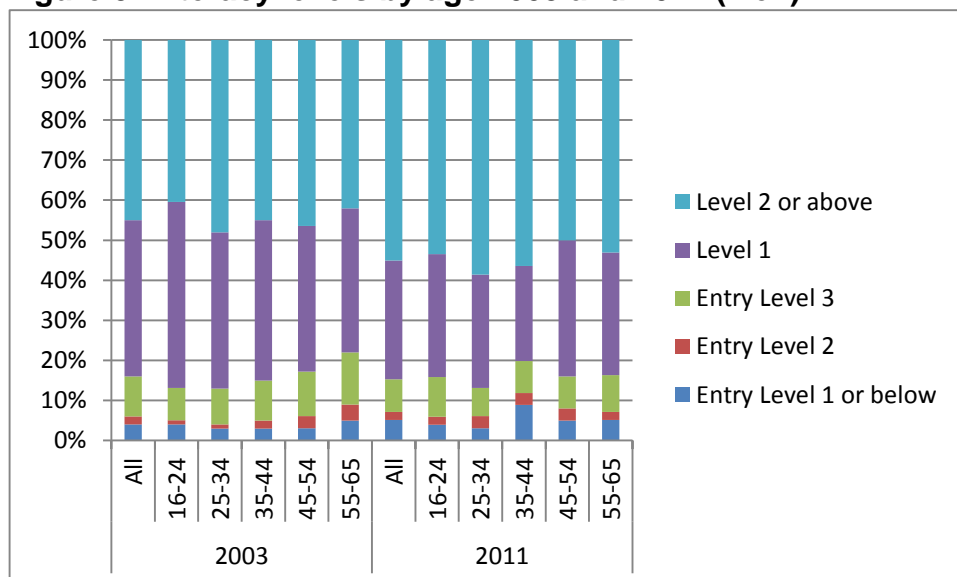
44% to 57% overall). While this does indicate a clear improvement, we find that a similar improvement between 2003 and 2011 occurs in older age groups too. This suggests that the increase in the proportion achieving the highest literacy level cannot straightforwardly be attributed to changes in policies affecting schools.

Figure 4: Literacy levels by age 2003 and 2011 (Women)



Source: Skills for Life

Figure 5: Literacy levels by age 2003 and 2011 (Men):

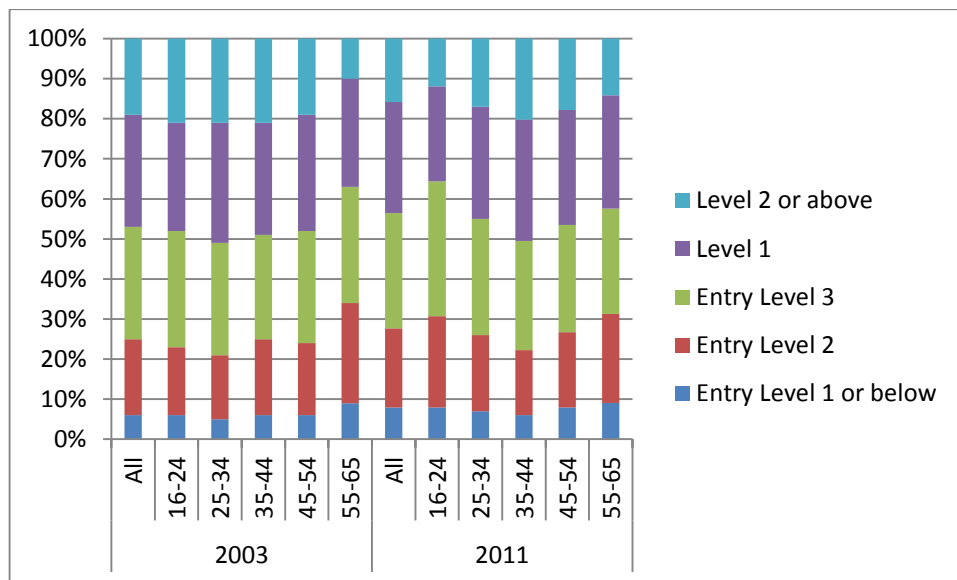


Source: Skills for Life

Numeracy

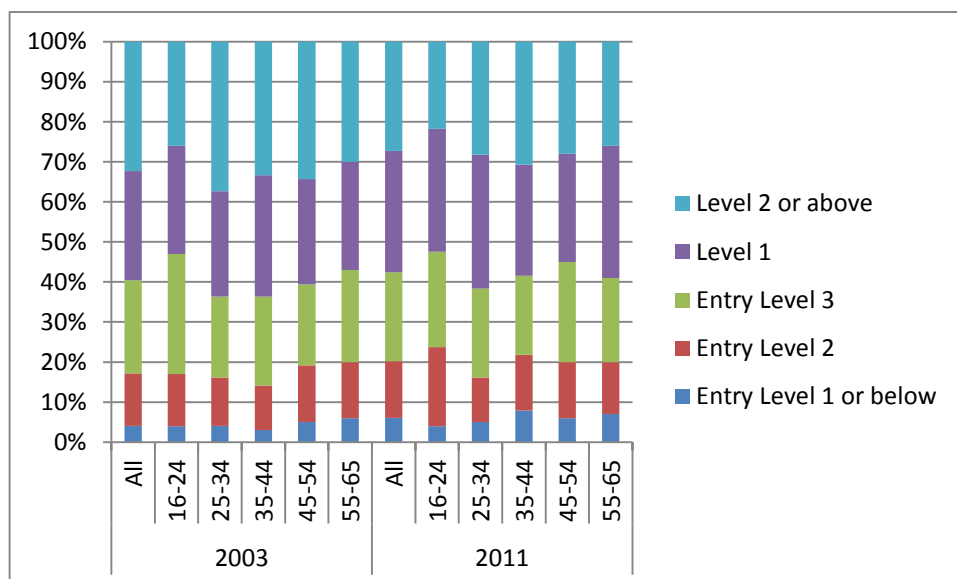
Entry level 3 is deemed to represent functional numeracy, and reflects the curriculum level of a 9-11 year old. Adults who are below this level may struggle with understanding prices and bills. The proportion of respondents achieving this level declined marginally between the 2003 and 2011 surveys, from 75% to 73% for women and from 82% to 79% for men. Worryingly, this decline was most marked for the youngest group. Of women aged 16-24, 77% achieved functional numeracy in the 2003 survey, declining to 70% in the 2011 survey. The equivalent figures for men are 83% and 77%.

Figure 6: Numeracy levels by age 2003 and 2011 (Women)



Source: Skills for Life

Figure 7: Numeracy levels by age 2003 and 2011 (Men)



Source: Skills for Life

So where does this leave us? Different sources of evidence suggest different conclusions, but all are beset by methodological problems. It seems safest to conclude that on balance there was little change over time in British levels of attainment relative to those in other countries. Since standards may well have been rising in other countries too, we would not rule out the possibility that absolute standards did rise modestly in Britain, and the Skills for Life Survey points in the same direction, at least for literacy. But there can be little doubt that the official results showing dramatic improvements in standards at KS2, GCSE and A level are grossly inflated.

Levelling up?

While the evidence on standards from the 1990s onwards is highly unsatisfactory and contentious, there is greater agreement on trends in inequality of educational achievements at the end of compulsory schooling. Four independent (non-governmental) studies using different datasets have all reached the same conclusion, namely that inequality has been declining.

First, in an analysis of PISA data Jerrim shows evidence of a reduction in the association between family background and average test scores between 2000 and 2009. The low response rates of the first two rounds of PISA might bias the results. However, this could have led to an underestimation of inequality in the earlier waves, as a low school response rate might disproportionately have affected disadvantaged schools and thus underestimated the extent of inequality. In this case, the reduction in inequality between 2000 and 2009 would also potentially be underestimated.

A second study by Gregg and Macmillan (2010), using a range of British data, looks at the strength of association between standardized family income and various measures of educational achievement such as the number of 'good' GCSEs obtained. They find that in the most recent data (LSYPE) covering students born in 1989-90, who would have reached the end of compulsory schooling in 2005-6 and thus would have experienced most of their primary and secondary schooling under New Labour, the background/attainment association was significantly weaker than it had been for children born 20 years earlier (as measured in the 1970 birth cohort study).

In a third study Lupton et al (2007) (see also (Lupton & Obolenskaya 2013), using official data, showed a dramatic decline in school-level inequalities in GCSE results, as measured by the percentage of pupils in the school in receipt of Free School Meals (in effect a measure of poverty, not of social class). They also found, using the Youth Cohort Survey a modest reduction in social class inequalities measured at the individual level between 1996 and 2004.

The same problems however that affected comparisons over time in standards when using GCSE results also apply to measures of inequality in GCSE attainment. While the increasing inclusion of GCSE 'equivalent' qualifications in the third Labour administration will not have affected studies of trends up until 2005 or thereabouts, the problem of grade inflation remains. That is, 5 good GCSEs in 1997 will not

necessarily mean the same as 5 good GCSEs in 2005: the goalposts have been moved.

In order to deal with the issue of potential grade inflation at GCSE, we carried out a further study of our own using YCS data but ranking students according to their points score at GCSE. We compared class differences in achievement of scores in the top and bottom thirds of the distribution. In effect then we are standardising or 'normalising' achievement by looking at the chances of achieving (or avoiding) a given threshold in the distribution of scores. Using this method we found a modest decline in class inequalities between 1997 and 2003, although the decline was markedly greater if unstandardised scores were used. (See Sullivan et al 2011.)

Unfortunately, later waves of YCS do not provide sufficient information for the derivation of a point score, which means we cannot extend the time series beyond 2003. However all four studies do show some modest degree of equalisation over the first two Labour administrations, and while they are all beset by the usual methodological problems, they are at least independent studies using a range of different datasets and carried out independently of government. We do not find the wild variations in estimated trends that we found when investigating standards. This consensus is also very different from that achieved by studies of social mobility in the population as a whole, where debates continue.

While much of the analytical focus has been on GCSEs, since this is a crucial transition point in the British educational system, Gregg and Macmillan (2010) and Sullivan et al (2011) have also looked at class inequalities in the achievement of A levels at the end of upper secondary education. Here the evidence is more mixed with Gregg and Macmillan finding little change but Sullivan et al finding a modest narrowing of class differentials. However, the gap is still large, despite this modest reduction.

International comparisons of the link between poverty and educational attainment

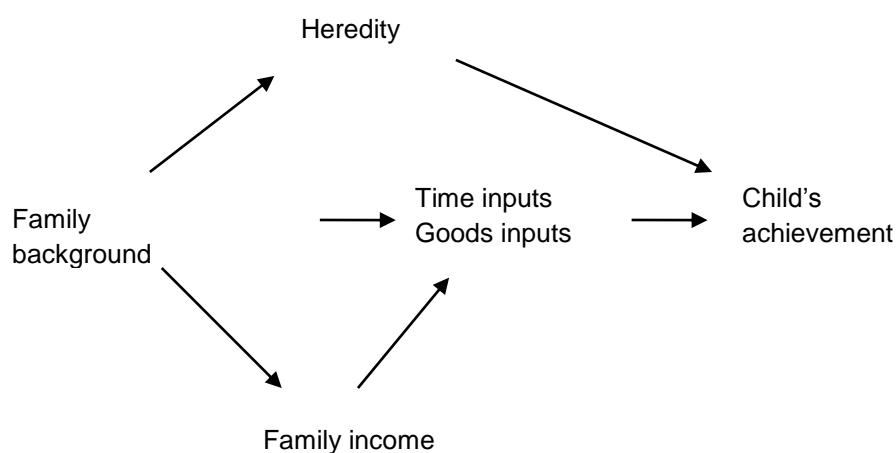
There are a number of challenges to exploring the link between poverty and educational attainment using the three major international datasets described above. Firstly, standard measures of poverty are usually based upon household income. However information on family income is patchy within these databases. TIMSS does not include any information about family income. PISA includes a question on household income within the parental questionnaire, but most countries do not take part in this aspect of the study (only 14 of the 65 countries in PISA 2009 chose to conduct the parental questionnaire – and this did not include the UK). The parental questionnaire for PIRLS also includes a question on parental income, with this data available for England in 2001 and 2006 (but not 2011), although almost half of parents did not respond in this country (Jerrim & Micklewright 2012). Moreover, the single question used to record household income in the PIRLS and PISA studies is likely to be subject to a non-trivial degree of measurement error (Micklewright & Schnepf 2010). For these reasons, it is not possible to draw robust conclusions regarding the link between formal measures of poverty (based upon household income) and educational attainment using the international achievement datasets.

Despite this limitation, it is still possible to examine the relationship between socio-economic status (SES) and children's test scores using international achievement datasets. However, one has to rely upon alternative measures of family background and social disadvantage. Four common measures are used: (i) parental occupation / social class, (ii) parental education, (iii) number of books in the home and (iv) a composite index of multiple (dis)advantages. A potential limitation is that these measures are all typically based upon children's reports. Jerrim and Micklewright (2012b) have investigated this issue using the PISA and PIRLS datasets. They found that international comparisons of SES gradients using parental occupation are robust to who reports the parental occupation information (the parent themselves or their child). Cross-national comparisons of socio-economic inequalities based upon parental education are moderately robust, while those based upon children's reports of books in the home are problematic. Marks (2011) finds that the use of different measures of family background (e.g. parental education, parental occupation and composite measures) produce broadly similar – though not identical – cross-country rankings of SES inequality in educational achievement.

Before presenting international evidence on the relationship between social disadvantage and educational attainment, it is worth explaining the added value of exploring such educational inequalities from a cross-national comparative perspective. To do so, I draw upon the theoretical framework of intergenerational persistence presented in Haveman and Wolfe (1995)¹. See Figure 1. Children's achievement is assumed to have two determinants - home investments (the time and goods that parents invest in their children's development) and heredity. On this model, quality schooling is one possible mechanism through which parental investments operate. Poverty and social disadvantage is clearly related to the former, with children likely to score lower on achievement tests such as PISA, PIRLS and TIMSS due to a lack of adequate investment in their development. However, the latter (heredity) recognises that at least part of the link between poverty (or SES) and children's outcomes could be due to genetic inheritance: bright parents tend to hold high socio-economic positions who produce offspring of above average intelligence. Hence the relationship between poverty and children's achievement will reflect both 'genetic' and 'environmental' factors. This in turn makes it difficult to know whether the link between poverty (or social disadvantage more broadly defined) and low test scores is due to the poor environments in which children have been raised.

¹ Note this discussion closely follows Jerrim (2012).

Figure 8: Haveman and Wolfe framework of children's achievement



Source: Adapted from Haveman and Wolfe (1995, figure 1).

However, one way around this problem is to compare the link between SES disadvantage and children's outcomes across a set of similar nations (Beller 2009, Blanden 2013). The intuition is that there is little reason to suspect the influence of genetic transmission ('heredity') to vary across countries. Thus any cross-national difference observed between social disadvantage and children's outcomes is assumed to be due to the environments in which they have been brought up. In other words, countries where this link is strong are where disadvantaged children do not have the inputs they need to succeed.

Bearing this in mind, a selection of studies is reviewed below that have investigated the link between family background and children's performance on the international achievement tests. One of the most frequently cited studies, particularly within the UK, is Schütz, Ursprung and Wössmann (2008). These authors used the TIMSS 1995 and 1999 datasets to investigate the link between family background and children's TIMSS test scores across more than 50 countries. They find that England and Scotland to be at the bottom of the cross-national ranking, with the link between family background and children's test scores stronger in these countries than almost any other comparable nation. However, caution should be exercised when interpreting this result as 'books in the home' is used to measure family background – which Jerrim and Micklewright (2012b) have shown to be problematic. We should also note that the number of books in the home is usually seen as a measure of parents' cultural capital, and as one potential mediator of disadvantage due to poverty or low social class, rather than a direct measure of such disadvantage.

A similar exercise has been conducted by Jerrim (2012) using PISA 2009 data. This study has the advantage of being more recent and using a more robust measure of family background (parental occupation). This paper focuses on the achievement 'gap' between the most and least advantaged children in each country (defined as the top and bottom 20 per cent of the population based upon a continuous index of

parental occupation). He finds that England is around the middle of the cross-country SES achievement gap ranking, with some *tentative* evidence that the relationship between family background and children's test scores weakened between PISA 2000 (children born in 1984) and 2009 (children born in 1993). This paper also suggests that England may have an unusually strong relationship between social disadvantage and high achievement. Jerrim and Micklewright (2011) use PISA 2003 data to look at the separate effects of maternal and paternal education on children's test scores. They find a slightly stronger link between parental education and children's academic achievement in England than the average OECD country, but that there is little difference in the 'impact' of mothers and fathers. Marks (2008) has also investigated the relative importance of maternal and paternal education for children's test scores using PISA 2000 data, and produced similar results.

One strand of cross-national research has focussed on the question of whether the extent of selection (or 'tracking') within school systems influences social inequality in children's test scores. Between school tracking or selection refers to the segregation of children into different secondary schools based upon academic attainment at a young age (similar to grammar schools that still exist in certain parts of the UK)². Unfortunately, evidence from these studies is inconclusive. Hanushek and Wöessmann (2006) argue that early tracking increases inequality in educational achievement, and suggest that 'one channel for increasing inequality is re-enforcing the effects of family background.' Using data on reading scores from PIRLS 2001 for 10 year olds and PISA data for 2000 for 15 year olds, Ammermueller (2006) finds that social origin becomes more important with age in countries with 'a differentiated schooling system with various school types and a large private school sector.' However, when conducting similar analyses using the international achievement datasets, Waldinger (2007) and Jakubowski (2010) failed to produce similar results; they found no evidence that such 'tracking' exacerbates SES inequalities. Jerrim and Micklewright (2012a) have recently undertaken a similar exercise and found that changes in educational inequalities across countries over time are sensitive to the specific empirical strategy used. The inconsistency of the conclusions reached mean that there is currently little robust cross-national comparative evidence to suggest that early school segregation of children by ability exacerbates social inequality in educational achievement.

Two other notable studies of the link between family background and children's educational attainment are Peter, Edgerton and Roberts (2010) and Schlicht, Stadelmann-Steffen and Freitag (2010). The former found that continental European nations tend to have more educational inequality than 'Anglo Saxon' countries. Meanwhile, Schlicht et al (2010) found that countries with high educational expenditures seem to mitigate the influence of family background on children's test scores. However, it is worth keeping in mind that the aforementioned studies are based upon correlational analysis only – neither provides proof that social welfare is *casually* related to educational inequalities.

² Here we refer to between school tracking (segregation of children into different schools based upon academic potential) rather than within school tracking – including the division of children into different ability groups within schools. See Chmielewski, Dumont and Trautwein (2013) for international evidence on the effects of different types of tracking.

Table 1 provides a country ranking based on the strength of the link between socio-economic background and PISA reading scores. The UK has a strong link between socio-economic background and reading attainment. However, there are no very clear patterns in the data regarding the kinds of countries that appear to be less unequal. While Finland, Canada and Korea are interesting countries to highlight, there is no obvious commonality between them. We need to be wary therefore of drawing over-strong conclusions. We cannot infer, for example, that copying certain aspects of the Finnish education system would necessarily lead to a more equal pattern of educational attainment in the UK.

At this point, it is worth noting that all cross-national comparative studies of educational achievement based upon PISA, PIRLS and TIMSS share a similar limitation – the data is cross-sectional and not longitudinal. In other words, children’s achievement is measured at just one point in time (e.g. age 15 in PISA). This severely limits one’s ability to separate cause and effect. For instance, PISA test scores are influenced by the experiences of children throughout the course of their life – from the in utero environment through to secondary schools. Consequently, in countries where socio-economic inequalities in educational achievement are large, it is extremely difficult to know what factor(s) are driving this. This is of particular importance for this review – it is not possible to attribute large socio-economic differences in educational achievement to the design of the schooling system per se.

A small number of cross-national comparative studies have emerged where longitudinal data from a small selection of countries is used to explore how SES differences in children’s test scores change as children age. The disadvantages of this approach, however, are that (i) only a small number of countries can be compared, and (ii) the data used is drawn from national surveys, and is therefore limited in terms of cross-national comparability. Blanden, Katz and Redmond (2012) use longitudinal data from the UK and Australia to investigate how educational inequalities compare in these two countries, and whether these disparities widen as children age. They find that educational inequalities in early test scores (up to age 7) are greater in the UK than Australia, but argue there is little evidence that these widen substantially in either country. Magnuson et. al. (2012) undertake a similar analysis for the United States and the former Avon district of England. Their analysis suggests that whereas *standardised* test scores may be relatively stable as children age in the two countries, the *absolute* difference in test scores widens between the age of 4 and 14. This is because the variance of kids’ absolute skills increases as they age, hence the absolute gap in schools between rich and poor grows because the variance grows, yet, the relative gap between them stays constant - the standardisation of scores removes any change in the variance that occurs over time. Haveman, Piraino, Smeeding and Wilson (2012) compare educational trajectories in Canada and the United States, finding that educational inequalities in both countries widen as children age. Finally, Bradbury et al (2012) find that the correlation between SES and early childhood cognitive outcomes (when children are approximately age 5) is stronger in the United States and the United Kingdom than in Canada and Australia. Essentially, longitudinal international comparisons have so far failed to identify cross-country differences in inequalities in children’s cognitive trajectories. So we cannot say, for example, that inequalities clearly widen more during the secondary school years in some countries than in others.

In conclusion, research indicates that there is a stronger relationship between parental social background and children’s test scores in the UK, or at least in England, than in many other rich countries. However, it is not possible to identify the extent to which specific features of the education system, as opposed to wider social policies, structural inequalities or cultural factors may lie at the root of this difference.

Table 1: Inequality in PISA reading test scores

	Socio-economic inequality	Test score dispersion	
Mexico	25	85	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">Low inequality</div> <div style="flex-grow: 1; border-left: 1px solid black; position: relative;"> <div style="position: absolute; top: -10px; left: 50%; transform: translate(-50%, -50%);">↓</div> </div> </div>
Iceland	27	96	
Estonia	29	83	
Turkey	29	82	
Spain	29	88	
Portugal	30	87	
Finland	31	86	
Chile	31	83	
Canada	32	90	
Korea	32	79	
Italy	32	96	
Greece	34	95	
Norway	36	91	
Denmark	36	84	
Netherlands	37	89	
Poland	39	89	
Slovenia	39	91	
Ireland	39	95	
Switzerland	40	93	
Luxembourg	40	104	
Japan	40	100	
Slovak Republic	41	90	
United States	42	97	
Israel	43	112	
Sweden	43	99	
Germany	44	95	
United Kingdom	44	95	
Czech Republic	46	92	
Australia	46	99	
Belgium	47	102	
Hungary	48	90	
Austria	48	100	
France	51	106	
New Zealand	52	103	

Notes: Socio-economic inequality refers to the reading test score increase per one unit increase in socio-economic advantage (as measured by the ESCS index defined within PISA). Test score dispersion is the standard deviation of PISA reading test scores.

Source: Page 16 of <http://www.oecd.org/pisa/pisaproducts/48852584.pdf> and Page 197 of <http://www.oecd.org/pisa/pisaproducts/48852548.pdf>

Summary

- The move from the tripartite system to the comprehensive system in Britain made surprisingly little difference to educational inequalities, and did not lead to a decrease in social mobility. Recent evidence suggests that income inequalities are exacerbated by LEAs providing selective schooling.
- Assessing trends in educational standards over time and in inequalities in attainment over time is difficult due to the incommensurability of measures of attainment over time. However, there is some evidence of a narrowing of socio-economic differentials in attainment during the period from the late 1990s up to 2010.
- Research indicates that there is a stronger relationship between parental social background and children's test scores in the UK, or at least in England, than in many other rich countries. However, it is not possible to identify the extent to which specific features of the education system, as opposed to wider social policies, structural inequalities or cultural factors may lie at the root of this difference.

Chapter 3: School Structures and School Composition

In this chapter we summarise the evidence on the effectiveness of particular types of schools in raising pupil attainment overall and for disadvantaged children in particular. Straight forward assessment of the success of a particular school structure is complex as different school types also tend to serve different populations of pupils. The best performing schools tend to have a more socio-economically advantaged intake (Jenkins et al. 2008; Sutton Trust 2006). The Sutton Trust have identified that in the 200 top state schools around 3% of pupils are eligible for free school meals, in comparison to the national average of 14%. Only 9% of the top 200 comprehensive state schools have an intake of free school meal eligible pupils above the national average, and 65% have intakes which include less than 5% of pupils eligible for free school meals (Sutton Trust 2006). This chapter also addresses methods of school place allocation and seeks to identify the implications of policies regarding how children are allocated to schools.

School Type

Academies

Academies represent a relatively new secondary school structure, with the first group of Academy schools opening in England in September 2002 under the Labour government (Machin & Veroit 2011). Academy schools are state-funded schools which are not controlled by local government authorities, and are managed by private sponsors. The original academy schools replaced struggling schools in deprived areas with the objectives of improving the performance of pupils and the wider community by using innovative approaches to school organisation, management and teaching (Curtis et al. 2008b).

There has not been a vast quantity of research and evaluation of Academy schools and the currently available studies show mixed results. In an evaluation by the National Audit Office (2010) it was found that Academy schools had improved performance levels compared to the schools which they had replaced. The level of performance of Academy schools at GCSE had also improved faster than non-academy schools with similar intake characteristics (e.g. the number of children from disadvantaged backgrounds). Price Waterhouse Coopers (2008) found greater improvement in the attainment of Academy school pupils from Key Stage 2 to GCSE compared with the national average. However, they also note that there is a large degree of variability in performance between Academy Schools. Machin and Veroit (2011) compared the performance of Academy schools to the performance of schools which went on to become academies later. Their results indicated that Academy schools did lead to improved performance at GCSE, but only once they had been established for some time. There was, again, a large degree of variability between Academies noted, with those schools which experienced the greatest increase in autonomy showing the greatest improvements in performance. The socio-economic characteristics of the school intake also seemed to change after a school became an Academy, attracting more advantaged students and including fewer students from disadvantaged social groups (Machin & Veroit 2011). On the other hand, Gorard (2009; 2014) did not find any clear evidence that the Academy schools

outperformed the struggling schools which they replaced or similar local authority schools with equivalent intakes.

Overall, the evidence reveals a large degree of variability in school performance, indicating that Academy status does not necessarily lead to success. There is no evidence currently available on those characteristics of Academy schools which may explain this variability (e.g. the characteristics of the most successful Academies), whether this variability is a result of differences between schools before they became academies or indeed whether the variability between Academies is a result of changing characteristics of school intake. The number of Academy schools has expanded drastically under the Coalition government elected in 2010. The scheme has been extended to primary schools and is no longer focussed on improving the performance of struggling schools. There is currently no evidence for any benefit of converting schools which are already performing well to Academies (Gorard 2014). Machin and Veroit (2011) warn that research evidence regarding the success of pre-coalition Academy schools should not be applied to these new schools and the effect of Academy school status on already successful schools is yet to be determined.

Free Schools

As part of the Coalition Government's extension of the Academy schools programme in 2010, 'Free' schools were also introduced. Free schools are Academies, however they provide the opportunity for parents, teachers and the wider community (e.g. charities or religious groups) to establish a new school if they are unhappy with the provision available in their area. These schools are funded from central government in the same way as Academy schools but are run by a group or company selected by those setting up the school.

The first free schools opened in 2011 and there are currently 174 free schools in England (less than one per cent of all schools). There is not currently any evaluation available of the success of free schools. The 2013 inspection reports of free schools reported that three-quarters were rated as 'good' or 'outstanding' (Department for Education 2013). However, this does not indicate whether they are performing better than schools with similar intake characteristics, or whether they have improved on the educational provision previously available in the area.

The main underlying principles of both Academies and Free Schools are that increased 'freedom' from Local Authority control will allow schools to innovate, diversify and compete to provide the best education for pupils. This 'marketisation' principle in education is not new and has been widely critiqued (see Deidrich 2012; McMurtry 1991). Whitty and Power (2000) note that although marketisation reforms have led to cases of improved schools they have not led to a notable reduction in educational inequalities. A lack of Local Authority control can also lead to poor planning and wasted resources. For example, many Free Schools have opened in areas which already have a surplus of school places, whilst other areas are suffering from a school place shortage (NUT 2013).

Specialist Schools

The Specialist Schools Programme began in 1993, when a number of secondary schools in England were given “Technology College” status. The programme expanded to ten areas of specialism: Arts, Business and Enterprise, Engineering, Humanities, Language, Mathematics and Computing, Music, Science, Sport and Technology. The aim was for schools to specialise in specific areas of the curriculum in order to boost attainment. To achieve specialist school status schools needed to raise private sector sponsorship and show outstanding performance in their specialist area. Specialist schools were entitled to additional funds and from 1998 they were allowed to select 10% of their pupils. By the end of the programme in 2010, the vast majority of state secondary schools in England were specialist in some area. An obvious concern about specialist schools is that the nature of the specialism tends to vary according to the social class profile of the pupils, with specialist schools in deprived areas more likely to specialise in for example sport rather than mathematics. This potentially restricts the curriculum available to children in poor areas, and exacerbates the British tendency towards early curriculum specialisation.

A number of annual evaluations of specialist schools have been undertaken (Jesson 2000; 2001; 2002; 2004; Jesson & Crossley 2007; Jesson & Taylor 2003). The main findings from these reports were that non-selective specialist schools achieved significantly higher results than non-selective non-specialist schools and that pupils in specialist schools showed greater improvement in their attainment (Jesson & Crossley 2007; Jesson & Taylor 2003). Jesson (2001) also suggests that specialist schools located in areas of high deprivation had the greatest level of improvement in attainment, although schools in deprived geographic areas do not necessarily serve their local community. Jesson’s methodology has been critiqued largely due to his analysis of aggregate school level patterns and a lack of attention to the influence of additional pupil characteristics (e.g. social disadvantage) on attainment (Schagen & Goldstein 2002).

Jenkins and Levacic (2004) attempted to overcome some of the weaknesses in Jesson’s evaluations by comparing specialist and non-specialist schools after controlling for a range of school and pupil characteristics such as: prior attainment, age, gender, size, free school meal eligibility, special educational needs and ethnicity. This study finds that overall pupils in specialist schools showed more progress than those in non-specialist schools. Schools which served more deprived populations (i.e. those with a greater proportion of pupils receiving free school meals) were particularly effective. Nevertheless, the effects were very small in size and variable across schools with different specialisms. Importantly, the analysis was based on the assumption of no selection bias in school intake as this could not be controlled for by the pupil and school characteristics available in the data (Jenkins & Levacic 2004). We know, however, that specialist schools could select up to 10% of their pupils which could in part explain the superior performance of some specialist schools.

In addition to the possible influence of selected school intakes, Smithers and Robinson (2009) warn that that Specialist schools became specialist because they were already successful and therefore any causal explanations as the success of specialist schools are extremely difficult. Taken together the evidence does suggest

that pupils in specialist schools, including those children and young people living in poverty, had marginally improved performance. However, due to selective school intakes and the lack of causal evidence there is not a strong evidence base on which to conclude that specialist schools were effective.

Faith Schools

State maintained faith schools are, in many respects, similar to non-faith state maintained schools: they follow the national curriculum, participate in national tests, and are inspected regularly by Ofsted. However, they teach the general curriculum with a particular religious character and have formal links with a religious organisation. Notably, faith schools are allowed to select their intake based on religion, although they must admit other applicants if they cannot fill all their places with their preferred pupils.

Studies of the intake characteristics of faith schools have found that faith school pupils are generally from more advantaged backgrounds, and have higher levels of prior-attainment before starting at the school (Allen & Wast 2011; Allen & West 2009a). Whilst there is evidence that faith schools do select pupils based largely on their parents' religious convictions, they also appear to select on social background. Faith school pupils are more likely to come from higher income religious families than low income religious families, which suggests that selection to faith schools extends beyond faith based characteristics (Allen & Wast 2011). Allen *et al.* (2011) note that this is not necessarily an explicit principle of faith school selection, but that parents from more advantaged social groups may be better equipped to negotiate admissions processes leading to increased admission rates from advantaged groups.

Morris (2009) studied the performance of Catholic schools in England and found that after taking into account characteristics of the school's intake (e.g. gender, ethnicity, free school meals eligibility, first language, children in care), Catholic faith schools showed better performance than non-faith schools. Morris (2009) suggests that a positive effect of Catholic faith schools on pupils performance may be due to the academically supportive environment which faith schools may provide, although this there is no clear description available of the form this environment would take or evidence that it differs from the learning environments of successful non-faith schools. Schagen and Schagen (2005) utilised a multi-level approach to the analysis of the effectiveness of faith schools. This study also controlled for characteristics of schools' intake and prior attainment and found slightly higher GCSE attainment and also a slightly higher number of examination entries. This study suggested that the overall higher average levels of GCSE attainment may be accounted for by entry into an extra GCSE in religious education. Although Schagen and Schagen (2005) concluded that overall faith schools seemed to provide only marginally superior performance compared to non-faith schools, they also found variability between the effects of faith schools. Roman Catholic schools, in particular, showed superior performance in English and Jewish schools showed higher levels of overall attainment. Schagen and Schagen (2005) highlight that there are pupil characteristics which they were unable to control for in this study (e.g. ethnicity, the number of pupils with English as a second language, and levels of parental support) which could be associated with pupil performance.

Gibbons and Silva (2011) analysed the attainment of faith school pupils at the end of primary education (i.e. age 11). They found that pupils who attended faith schools did demonstrate better performance in Maths and English tests, however the benefit of attending a faith school could be explained by the school's intake characteristics. Notably, higher levels of performance were not found in faith schools which did not control their own admissions process (Gibbons & Silva 2011).

Overall there is not a large evidence base in this area and the results are mixed. We tend to find that pupils attending faith schools do have marginally better levels of performance. However, the superior performance of faith school pupils may have more to do with their social advantage than the influence of the school itself (Gibbons & Silva 2011). Additionally, there is evidence that disadvantaged children are less likely to attend faith schools even if they come from a religious family (Allen & Wast 2011). Church attendance is linked to social class, and complying with faith schools' demands regarding church attendance requires a significant investment of time from parents, sometimes years in advance of children applying for a place at the school. It is not surprising that poor parents are less likely to overcome these hurdles to achieving a place at a faith school.

Single Sex Schools

Single-sex schools were once a standard feature of UK education in both the primary and secondary sectors, however the number of single-sex state schools in the UK fell 80 per cent in the last few decades of the 20th century and are now very rare (Robinson & Smithers 1999). Studies have suggested that single-sex schools can enable boys to be more expressive, emotional and responsive as they do not have to maintain a 'laddish' image in front of girls (Sukhnandan et al. 2000; Swan 1998; Warrington & Younger 2003). However, there are also concerns that teaching classes of all boys might be more challenging and disruptive (Jackson 1999). Teaching girls together may allow them to escape the disruptive behaviour of boys (Ball & Gewirtz 1997; Blackmore et al. 2004). Furthermore, there have been suggestions that girls schools provide the opportunity to challenge gender stereotypes and improve female affinity for mathematics and science (Sukhnandan et al. 2000).

The evidence on the effectiveness of single-sex schools is mixed. Mael *et al.* (2005) conducted a review of the literature and found a mix between studies indicating positive effects of single-sex schools on pupils' attainment and studies which found no effect. However there was only one study which suggested that co-educational schools led to better performance than single-sex schools (Mael et al. 2005).

Studies in this area have been hampered by a lack of control for school-intake and additional school characteristics (Mael et al. 2005; Smithers & Robinson 2006). Taking these additional features into account, Signorella *et al.* (2013) conducted a meta-analysis of the evidence and concluded that the additional features of schools and pupils (e.g. social advantage) can account for differences in attainment between single-sex and co-educational schools (Signorella et al. 2013). This finding was also demonstrated by Robinson and Smithers (1999) in their study of the GCSE and A-level attainment of boys and girls in single-sex and co-educational schools. Although

single-sex schools showed better overall performance, this was accounted for by academic selection and the socio-economic status of the school-intake.

However, there may be more nuanced benefits of single-sex education beyond overall attainment levels. Sullivan (2009) found that girls rated their abilities in maths and sciences higher if they went to an all-girls school. Boys on the other hand rated their abilities in English higher if they went to an all-boys school (Sullivan 2009). Similarly, boys and girls who attended single-sex schools showed increased attainment in gender-atypical subject areas (Sullivan et al. 2010a), suggesting that single-sex schools may contribute to breaking down gender stereotypes. However, there is no robust evidence of particular advantages of single-sex schooling for disadvantaged pupils.

Allocation Policies

Throughout the previous sections of this chapter we have often concluded that the effectiveness of schools can be mostly accounted for by a larger proportion of more advantaged pupils in the school-intake. This section considers the methods by which pupils are allocated to schools, and specifically evaluates evidence regarding the extent to which school allocation policies can help children and young people in poverty access the best performing schools.

Selective Schools

The secondary school system in Northern Ireland allocates pupils to grammar or comprehensive schools based on test performance and five per cent of secondary schools in England also use this method of place allocation (Lupton et al. 2013). There are no selective state schools in Wales or Scotland (Lupton et al. 2013). Pupils from poor backgrounds, indicated by free school meal eligibility, are much less likely to attend a selective school compared to their more advantaged peers, even when their prior level of educational attainment is taken into account (Atkinson et al. 2007; Coe et al. 2008).

Overall the evidence shows that selective schools show greater levels of pupil performance and progress (Coe et al. 2008; Levacic & Marsh 2007; Schagen & Schagen 2005). Furthermore, the benefits of a selective school are particularly noteworthy for those pupils who had the lowest levels of prior attainment and these pupils performed better than their counterparts who attended non-selective schools (Schagen & Schagen 2005). A similar result was also found in the Northern Irish context in Guyon *et al.*'s (2012) study of the effect of an increase in the number of selective-school places. Overall Guyon *et al.* found that the expansion in selective schools led to an overall increase in GCSE and A-Level results at the end of schooling, as a result of an increased number of pupils in selective track schools. This result suggests that pupils who were previously excluded from the selective track (i.e. due to a smaller number of places) could benefit from attendance at the selective schools. In a similar study, Maurin and McNally (2007) found that economically disadvantaged pupils who were admitted to selective schools showed an improvement in their examination performance relative to those attending non-selective schools.

Maurin and McNally (2007) conclude that the barriers which prevent children in poverty gaining access to selective schools (e.g. poor prior attainment) have an important influence on educational inequality as children in poverty do appear to benefit from attending selective schools if given the opportunity. Although, there also seem to be additional barriers to grammar school admittance of children from disadvantaged backgrounds, which extend beyond prior attainment. Cribb *et al.* (2013) note, for example, that two thirds of pupils who achieve Key Stage 2 level 5 in English and Maths and are not eligible for free school meals, go to a grammar school. In contrast, only 40% of pupils eligible for free school meals, with the same level of prior attainment attend grammar schools.

Besides the 7 % of secondary school pupils in England who attend independent fee-paying schools, there are still 164 selective grammar schools (Sutton Trust 2013). Additionally, the best performing secondary schools are effectively selective because they serve advantaged geographical areas which are not populated with large numbers of pupils living in poverty (Sutton Trust 2013). Overall, selective schools have benefits for those who attend them and disadvantages for those who are excluded from them. The poor are found disproportionately in the latter group (i.e. 4% of pupils in grammar schools in England live in the poorest fifth of neighbourhoods and 34% live in the richest fifth of neighbourhoods (Cribb et al. 2013).

Banding

Banding is a method of school allocation whereby pupils are separated into bands based on test performance, and then an equal balance of pupils from each band are allocated to schools. The aim is to create a true comprehensive, reducing segregation and representing a full distribution of pupils. There is some evidence which suggests that banding could contribute to reducing educational inequalities. Zimmer and Toma (2000) found that in classes where the presence of high performing pupils increased the overall level of performance of a class, improvements were also seen in the individual level performance of the least able class members. Conversely, Strand (1997) found that classes with high levels of students eligible for free school meals, with generally lower levels of attainment, displayed depressed performance over and above the effect of individual pupils' free school meal entitlement.

A study of banding in London schools (Inner London Education Authority 1990) found that schools with a greater proportion of pupils in the top band had superior GCSE examination performance over and above that which would be expected for the actual number of top band pupils present. At the same time, where there was a higher proportion of pupils in the lower bands there was lower than expected levels of attainment.

Overall there is very little direct evidence on the effects of banding, crucially the interpretation of results which suggest that overall school composition can have additional effects on individual level attainment have been critiqued (Gorard 2006; Nash 2003). Gorard (2006) argues that these studies lack adequate data on pupil characteristics to be certain of the robustness of these effects. Therefore, the evidence reported here should be treated with caution. More evidence is required to understand the influence of mixed school compositions on educational attainment,

and particularly to understand the mechanisms by which these effects would come about.

Parental Choice

Since the Education Reform Act 1988, parents in England have been able to indicate a preference for which school their child attends. As funding is linked to the number of pupils on the school role, parental choice may provide an incentive for schools to compete for pupils by improving their standards. However, there are a number of studies which suggest that parents may differ in their preferences for schools (i.e. not all parents appreciate the same school characteristics). As not all parents are choosing schools based on the same reasoning, the chances of between school competition are limited and parental choice may, therefore, exacerbate school segregation.

Germirtz *et al.* (1995) find that less advantaged parents are not as skilled at choosing the most successful schools as their more advantaged counterparts and they make decisions based on different preferences. Less advantaged parents are more likely to believe that all schools available offer a reasonable standard of education, and view success or failure as related more to the capability of their child to learn, therefore reducing the emphasis on selecting the 'best' school (Ball & Vincent 2007; Reay & Ball 1997). More deprived parents may also be more likely to take into account the child's preferences (e.g. desire to remain with a friendship group) in their choice of school (Ball & Vincent 2007; Reay & Ball 1997). Burgess *et al.* (2009) examined parents preferences for primary schools and found that more advantaged parents stated that academic standards determined their choice of school, whereas more disadvantaged parents were more likely use proximity to determine their choice. Given differences in school preference, allocation policies based on parental choice may act to maintain or exacerbate educational inequalities if more disadvantaged parents select themselves out of the highest performing schools.

Advocates of school choice and competition argue that competition between schools will inevitably raise standards. However, the influence of competition per se on standards is difficult to pin down empirically, and evidence suggests that competition from self-governing and faith schools has not driven up standards in neighbouring schools (Allen and Burgess 2010). Gorard *et al.* (2001a) found that schools have become significantly less segregated since the introduction of parental choice, but these patterns of less segregation and more equality cannot be attributed directly to the increase in parental choice. No causal claims can be made as to the success of this policy based on Gorard *et al.*'s (2001a) study since many changes in schools and education policy occurred in this period, alongside wider changes in society and the economy. Machin and McNally (2011) conclude that despite efforts to increase parental choice in the English education system, school choice in itself does not seem to contribute to reducing educational inequalities.

Catchment Areas

In Scotland and Wales, school admissions operate largely based on catchment areas. Pupils attend the local school designated to them, although parents do have

the right to apply to attend an out-of-catchment school in certain circumstances. In England, popular, oversubscribed schools operate a catchment areas allocation policy where places are given in the first instance to pupils who live within a defined geographical area.

The evidence on the impact of catchment area allocation policies is largely based on the analysis of the impact of successful schools on the prices of houses in the catchment area. The evidence indicates that more advantaged parents are able to secure places at more successful schools by moving to a good catchment area or by taking schools into account when selecting their housing location (Leech & Campos 2003). The increased demand for housing in these 'good' catchment areas does appear to increase housing prices. Leech *et al.* (2003) examined the case of two highly popular schools in England, and found that their catchment areas commanded a house price premium. A report by Reform Scotland (2014) suggests that parents pay to send their children to the best state schools in Scotland by paying to live in expensive catchment areas. Gibbons *et al.* (2012) conducted a more refined study which attempted to overcome a range of methodological problems in analyses of house price premiums in popular school catchment areas. This study again finds that families pay higher house prices to stay in areas with schools which are likely to raise their child's educational attainment. There is a lack of evidence which explicitly considers the effect of catchment area school allocation policies on either social segregation within schools or the educational attainment of pupils. However, we know that advantaged parents are able to use their wealth to access the schools of their choice under this allocation policy.

Lotteries

The School Admissions Code 2008 gave schools the option of using lotteries, or random ballots, to allocate places to pupils. Lottery schemes aim to provide an egalitarian approach to school place allocation by giving each child an equal probability of selection to a school, regardless of the socio-economic advantage of their parents. The effectiveness of lotteries in reducing school segregation will clearly depend on the way in which they are implemented. Evidence regarding Brighton and Hove's reforms suggests that they are unlikely to substantially reduce segregation across schools without changes in the catchment boundaries (Allen *et al.* 2013)

Studies from lottery based school admissions policies in the US have indicated that pupils allocated school places by lottery demonstrate improved test performance compared to those who did not gain access to the school (Greene *et al.* 1997). A particularly positive effect of student test performance has been found for pupils from low-income families who gain a place at a high performing school using a lottery (Hoxby 2004). However, we might expect that children who gain places to successful schools, by whatever means, would demonstrate improved performance in comparison with their less lucky counterparts who attend less successful schools. Indeed Cullen *et al.* (2003) found little evidence that gaining a lottery place in the Chicago Public School system resulted in higher levels of attainment for pupils in poverty, which may emphasise the great importance of home background over and above school characteristics in determining educational success (see Chapter 4).

Clearly, there is potential for lotteries to be used effectively to reduce social segregation within schools. However, there is currently a weak evidence base available regarding whether random allocation to schools can reduce educational inequalities. Research is required to not only study the influence of lotteries on the attainment of children in poverty but also to analyse the extent to which lotteries reduce social segregation in schools. Notably, lotteries are often used only in oversubscribed schools and parents have to choose to enter their child in the lottery. Given the possible differences in parental preferences described previously it could be possible that more disadvantaged parents will not participate in lotteries and more advantaged children may remain over-represented in the best performing schools.

Summary

Overall, there are differences in the performance of pupils who attend different types of schools, however many of these differences could be accounted for by the more advantaged characteristics of the school's intake. Studies have emphasised that the major influence on a child's educational attainment comes from outwith school (Rasbash et al. 2010a). Therefore we need to carefully consider a school's intake in order judge how effective or successful the school is. For those schools which did show superior performance more research is required in order to identify the mechanisms of school success (i.e. what specific features of the school mediated improvement in pupil performance), however this is extremely complex as policy changes do not often occur in isolation. The evidence on school allocation policies emphasise that parents from advantaged social backgrounds are able to use their advantage to secure places at the best schools. There is also tentative evidence that more deprived parents may value school characteristics other than academic performance when selecting a school for their child.

In terms of the effectiveness of different schools types we find that:

- There is mixed evidence on Academies. It is important to note that the available evaluations of Academy schools relate to those schools which were struggling before being converted into Academies. Many of the newest Academies were already successful before conversion, and there is no evidence to suggest that these schools are more successful than schools with comparable intakes. Academies do not appear to have been successful in reducing SES segregation between schools
- There is not currently any clear evidence available on the effectiveness of free schools.
- The evidence suggests that specialist schools may have marginally improved pupil performance, but this is likely to be due to the selection of pupils. There is no evidence that specialist schools have improved opportunities for poor children, and there are concerns that specialist schools lead to early curriculum specialisation which may limit future opportunities for poor children.
- The evidence indicates that faith schools perform well in the league tables; however this is likely to be accounted for the characteristics of the pupils who attend these schools. Faith schools generally serve pupils from more advantaged social backgrounds and children from disadvantaged families are

less likely to attend a faith school even if they come from a religious family. Therefore, faith schools are likely to exacerbate educational inequalities.

- Evidence on the effectiveness of single-sex schools suggests some benefits, but there is no robust evidence for a particular benefit for poor pupils.

In terms of the impact of school allocation policies we find that:

- Selective schools show greater pupil performance and progress, but are least likely to serve poor pupils.
- The effect of school composition is well established in the literature. Children who attend schools with a higher proportion of high-attaining pupils or pupils of high socio-economic status perform better than similar children in schools with a high proportion of poor and low attaining pupils. This may be due to peer effects, the disciplinary environment, and influences of school composition on the type of teacher the school can attract and the type of curriculum offered. This suggests that one way of helping poor pupils would be to decrease school segregation. Banding and school lotteries are both promising avenues for achieving this, but more research is needed to establish whether these are effective at reducing segregation and improving the attainment of the worst off.
- There is evidence that more disadvantaged parents may make different decisions than more advantaged parents when selecting a school (e.g. they may prefer proximity to performance, or be less well informed). However, the available evidence indicates that school segregation did not increase after the introduction of parental choice.
- The evidence indicates that more advantaged parents are able to take advantage of school catchment area policies by moving to the catchment areas of the most successful schools.

Chapter 4: School and Teacher Quality

A frequently proposed explanation as to why children and young people living in poverty have lower levels of educational attainment is that they attend poor quality schools and are taught by poor quality teachers. There are clearly large differences in examination performance between schools; in 2013 in the best performing state secondary schools in England, 100% of pupils gained at least five GCSEs at grades A*-C including English and Maths. Yet, in the worst performing state secondary school only 47% of pupils attained this benchmark level of performance.

Nevertheless, educational attainment is influenced by a complex range of factors outside of school; including individual characteristics, family environment, neighbourhood and peers. Taking this multifaceted range of influences into account, there is a longstanding debate on the extent to which variations in performance between schools occurs as a result of differences in quality of educational provision, or whether variations in pupil performance can be accounted for by what children bring to their education from outside school. Clearly there is an interaction between the two, and schools serving poor neighbourhoods deal with an array of additional challenges, including emotional, welfare and disciplinary issues (Lupton 2005).

This chapter begins by evaluating the extent to which schools influence educational attainment. We then summarise research evidence regarding the effectiveness of key school and teacher characteristics in improving educational attainment and alleviating poverty-related educational inequalities.

Do schools vary in quality?

To adequately summarise the evidence in the area of school and teacher quality it is first necessary to consider whether we are able to fairly judge the extent to which schools vary in their contribution to the educational performance of pupils. Standardised tests are widely regarded as valid and objective measures of what children have learnt and are often treated as an indicator of the quality of education provided by schools³. Each year the Department for Education in England publishes performance information for GCSE and A-Level examinations in secondary schools, and Key Stage 2 examinations in primary schools⁴.

Commonly known as 'league tables', these resources receive a large amount of political and media attention, however researchers have argued that these between-school comparisons of examination performance tell us more about differences in the intake of schools than education quality (Goldstein & Leckie 2008; Goldstein & Spiegelhalter 1996; Leckie & Goldstein 2009). Gorard (2010) notes that the best

³ Ofsted (Office for Standards in Education, Children's Services and Skills) inspect schools and produce publicly available reports. Schools are judged as: outstanding, good, satisfactory or inadequate based on inspection, and the reports also provide suggestions for improvements to be made. These reports are useful in assessing an individual school's performance but do not allow schools to be compared (other than on their four-point score) and do not take into account variations in school intake.

⁴ Similar information is published for schools in Wales. In Scotland performance information is provided for examinations in secondary school only. Northern Ireland does not publish school performance data.

performing schools tend to serve more advantaged children who have a higher probability of educational success, irrespective of the influence of schools themselves.

A response to this critique has been the introduction of value-added measures; these measures aim to give an indication of the effectiveness of schools in improving their pupils' attainment over time. For example, in addition to the number of GCSE A*-C passes which a school achieves, a value-added score is calculated by comparing each pupil's GCSE results with those of other students who had similar prior attainment levels measured at Key Stage 2. However, there are still major weaknesses in this approach (see Goldstein & Spiegelhalter 1996), notably prior attainment and educational progress is also influenced greatly by a pupil's home background and therefore value-added measures may act simply to obscure patterns of inequality in educational attainment related to the intake of schools (Gibson & Asthana 1998). A further, more refined, attempt to represent variations in school quality involves the use of contextual value-added indicators (Ray 2006). These measures take account of differences in school intakes based on characteristics of the school's pupils such as: gender, special educational needs, eligibility for free school meals, first language, ethnicity, children in care, and the level of deprivation in the area where a child lives.

However, the data available for the production of contextual value-added measures contain a large amount of missing information and rely on proxy variables such as area deprivation rather than information on the individual pupils themselves. It is therefore likely that these datasets include incorrect values for a number of children in each school and therefore analysts have argued that they fail to effectively control for the characteristics of school intake (Gorard 2010; Gorard & See 2013).

Additionally, there are also further methodological concerns with the measurement of school quality, performance indicators are highly volatile and can vary from year to year (Gorard & See 2013; Kane & Staiger 2002). One cause of these fluctuations may be the small sample sizes of pupils in each year group within schools, which are not a strong basis on which to securely judge school performance (Leckie & Goldstein 2009). Overall, it is clear that these mainstream methods of measuring variation in the quality of schools are ineffective and it would be misleading to attempt to identify the 'best' or highest quality schools in the country based on these methods (Gorard & See 2013).

Studies that have sought to partition the influence which schools and other factors, such as family background, have on the educational attainment of children and young people have concluded that the majority of variation in attainment is attributable to characteristics of school intakes rather than schools themselves (Reynolds et al. 1996; Sammons 1999). Rasbash *et al.* (2010a) found that only 20% of variance in educational progress could be attributed to schools. Bernstein (1970) famously stated that 'education cannot compensate for society', and the critical review of evidence on performance indicators provided here suggests that the influence of factors outside school remain great. However, that is not to say that schools should not strive to improve their practice or that they cannot be designed to minimise the impact of inequality on educational outcomes. Evidence from the field of school effectiveness research seeks to identify differences in practice between and

within schools and attempts to describe what the most effective schools and teachers look like, and the remainder of this chapter describes the evidence regarding the extent to which key characteristics of schools and teachers can improve educational performance.

School Characteristics

Discipline and Behaviour

Children from disadvantaged backgrounds have been found to exhibit higher levels of hyperactivity, conduct problems and peer problems in primary school, and these behavioural problems negatively impact on their attainment (Goodman & Gregg 2010). At secondary school, children living in poverty are more likely to demonstrate: antisocial behaviour; engage in truancy; and be subject to suspension and exclusion (Goodman & Gregg 2010). These behavioural problems have been shown to result in poorer GCSE attainment (Goodman & Gregg 2010). Tackling these behavioural problems in school may impact on the influence of poverty on educational inequality.

The research evidence suggests that authoritative approaches to school discipline (i.e. the enforcement of high standards in combination with warmth, communication and understanding) can lead to improved behavioural outcomes in comparison to authoritarian school discipline approaches (i.e. the enforcement of high standards with a lack of responsiveness to pupils) and indifferent approaches that fail to enforce discipline (Pellerin 2005). Gill *et al.* (2004) has also found evidence that suggests that in American high schools where pupils perceived a warm and responsive approach to discipline, inequalities in mathematics achievement in relation to socioeconomic status were reduced. The evidence appears to indicate that the enforcement of high standards of discipline alongside fairness, warmth and positive relationships between pupils and teachers may have positive impacts on the educational outcomes of children and young people living in poverty.

Whilst discipline has traditionally been enforced in schools by way of punishments (e.g. lines, detentions, suspensions and exclusions) (Howard 2009), evidence has indicated that punishment can inadvertently reinforce negative patterns of behaviour (Bandura 1962). Positive reinforcement of good behaviour in schools may be effective in improving outcomes and can be relatively symbolic involving house points, certificates or 'star charts' (Dunne *et al.* 2007; Johnson *et al.* 2006). There have been concerns cited that positive enforcement practices can reduce pupils' motivation and their intrinsic interest in learning (Holt 1983; Tegano *et al.* 1991), however these claims have not been supported with empirical evidence (Cameron & Pierce 2002; Eisenberger *et al.* 1999). Positive enforcement programmes also need not focus only on those children demonstrating high attainment; they can be tailored to individual performance and improvement or behavioural compliance to address the needs of specific groups of children (Dunne *et al.* 2007).

Uniforms

School uniform policies are widespread in the UK; however there is not any clear evidence that the enforcement of strict school dress codes have a positive effect on

behaviour, performance or attainment. Rigorous reviews and analyses of the influence of school uniforms have been unable to find a clear link between uniforms and attainment (Loesch 1995; Scherer 1991). Analysis of the large scale US National Education Longitudinal Study of 1988 failed to find an association between uniforms and academic achievement when other characteristics of pupils and their schools were taken into account (Brunsmas & Rockquemore 1998). Although there is no evidence that uniforms improve educational attainment, the authors of these studies have emphasised that uniforms could impact on other positive school characteristics such as school ethos. Nevertheless, there is no evidence for this.

Time Spent in School

Studies have indicated that children from disadvantaged groups show more equal rates of educational improvement compared to their more advantaged peers when school is in session (Downey et al. 2004). During school holidays disadvantaged children, in particular, tend to show a reduction in their maths and reading skills (Cooper et al. 1996). There have been suggestions that increasing the amount of time which children spend in school, whether by increasing the length of the school day or decreasing the length of school holidays, will improve educational attainment.

A number of studies have utilised 'natural experiments' to study the influence which time spent in school has on test performance (e.g. by looking at variations in examination dates or unplanned school closures). These studies provide evidence that additional days of instruction can result in improved test scores (Fitzpatrick et al. 2011; Marcotte & Hemelt 2008; Sims 2008). Reviews of studies which have investigated student performance according to structured differences in school schedules (e.g. length of school day or length of school term) have suggested that there is likely to be a positive effect of increasing the time which children spend in school (Cooper et al. 2003; Karweit 1985; Patall et al. 2010). However the evidence base is weak and any observed effects are small (Cooper et al. 2003; Karweit 1985; Patall et al. 2010).

Looking to cross-national evidence, Stevenson's (1986) analysis of school time and educational attainment between countries did find correlational evidence of an association between time spent in school and educational attainment. However, this study also found that these cross-national variations in attainment were apparent even before children entered school and emphasised that schools differ in a multitude of ways between countries which could influence attainment. Cross-national comparisons of school schedules do not therefore provide clear evidence on this issue.

There are very few longitudinal studies that focus on the cumulative effects which extending the time spent in school could have on children's attainment throughout their educational career. Urdegar's (2009) evaluation of a large-scale extended school day programme in the US found that over three years, pupils in schools with extended school days performed no better on average than a comparable group of students who did not experience extended time in school.

An additional complexity in this area is that the effectiveness of additional school time may interact with variables such as behaviour, motivation and engagement with

learning. Additional time spent in school may not be equally effective for all groups of pupils and could be counterproductive for some (Fredrick & Walberg 1980), however there is no clear evidence on these issues available. There is some tentative evidence that more time in school is not always positive. Wheeler's (1987) study of the influence of the length of the school day in California schools on educational test performance found a curvilinear effect of time, which indicated that the longest school days did not necessarily result in the best test scores.

Overall, it is clear that the evidence base on the effect of increasing the time children and young people spend in school is complex. Generally positive or neutral effects are found for increasing the amount of time children spend in school but more research is required to come to clear conclusions. We also lack evidence on important features of this issue such as: the optimal amount of time for improved outcomes; the longitudinal effects of increasing time in school; the effects which increasing time in school may have on specific groups of children who may already struggle within existing school time; as well as considerations of the wider effects of increased time in school on other aspects of young people's lives (e.g. participation in extra-curricular activities).

Setting and Streaming

Schools may employ some form of ability grouping in an attempt to provide the most effective form of instruction. Ability grouping within schools is generally based on either streaming (i.e. where pupils are split into several hierarchical groups and remain in these groups for all classes) or setting (i.e. where pupils are split into separate ability-based classes for certain subjects). Recent analysis of streaming in primary schools in England finds that around 16 per cent of children in the second year of primary school are taught in ability-grouped classes (Hallam & Parsons 2012). There is not a large body of evidence on the effectiveness of ability grouping within schools for improving educational attainment or reducing educational inequalities.

Harlen and Malcolm (1999) reviewed the evidence on setting and streaming in primary and secondary schools in the US and the UK. Overall, the review concludes that there is no clear evidence that educational attainment is improved as a result of ability grouping within schools. More recent evidence on the influence of setting and streaming on GCSE attainment, also finds that there are no significant effects of setting or streaming on attainment in English, mathematics or science (Ireson et al. 2005).

On the other hand Collins and Gan (2013) find a positive effect of ability grouping in US schools, this positive effect is found for both high ability and low ability students and is consistent with the theory that ability grouping allows teachers to more effectively teach students with a narrower distribution of needs. Kulik and Kulik (1982) conducted a meta-analysis of studies carried out on ability grouping in secondary schools found that there were significant benefits of ability grouping on attainment but that these effects were very small. Furthermore, although studies of tracking into 'high ability' or 'gifted' classes showed notable effects, the influences of

tracking for pupils with low levels of performance were almost zero (Kulik & Kulik 1982).

Overall, the results of studies on setting and streaming are mixed. There are indications that streaming and setting seem to have a minimal influence on educational attainment, but this may also vary for high performing and low performing pupils. More research is needed to identify the particular influence which this school feature has on the educational outcomes of children in poverty.

Class Sizes

The extent to which class sizes within schools can influence educational outcomes has received considerable research attention. There are a number of reviews of the evidence base which have concluded that there is evidence that reductions in class size do lead to improvements in educational outcomes (Blatchford & Mortimore 1994; Finn & Achilles 1999; Konstantopoulos 2009; Schanzenbach 2007). However, some studies have come to contradictory conclusions, Hanushek's (2002) summary of the evidence found that studies showed effects which were both positive, negative and non-significant. Slavin's (1989) review of experimental studies concluded that even where schools had made substantial reductions in class sizes, the impacts on achievement were minimal.

Goldstein and Blatchford (1998) have expressed concerns over the methodological rigour of many studies in this area, and have emphasised that studies have suffered from poor designs and inadequate analysis. Importantly, the effects of class size reductions vary according to the size of the class and the age group of the pupils. Taking these specificities into account Blatchford *et al.*'s (1994) review emphasised that there was firm evidence of a class size effect but only in the early years of primary education and only when class sizes were smaller than twenty. In a notable large UK study of 'Class Size and Pupil Adult Ratio' (CASPAR), children were studied in the first years of primary school over a three year period (Blatchford 2003; Blatchford *et al.* 2002). Significant class size effects were found in attainment of literacy and mathematics in the first year of primary school. The benefits of smaller classes for literacy attainment were particularly notable for lower-attaining children (a group of which poor children form a disproportionate part). However, the study did not find benefits of class sizes in the subsequent two years studied, suggesting that class size effects were most prominent in the first year of school. The Tennessee Student/Teacher Achievement Ratio (STAR) programme also provides evidence that small classes can raise attainment for young children in the first years of primary school (Boyd-Zaharius 1999).

Borland *et al.* (2005) suggest that the contradictory findings of previous studies may occur as a result of a non-linear association between class sizes and educational outcomes, there may be class size above and below which the learning environment is not optimal for improving educational outcomes.

Studies have also emphasised that the key to the positive effect of reducing class sizes is the effective utilisation of classroom strategies which maximise the teaching opportunities that small classes provide (Anderson 2000; Blatchford *et al.* 2008). Blatchford *et al.*'s (2008) in-depth observation of classroom practices found that in

smaller classes: pupils received more individual attention; there was more active interaction between pupils and teachers; a reduction of off-task pupil behaviour, particularly in secondary schools; and improved classroom management of disruptive behaviour (Blatchford et al. 2008). It is differential classroom processes like these which are held to mediate the effects of reduced class sizes on educational attainment (Blatchford et al. 2008). However, studies also indicate that teachers do not always take advantage of the teaching techniques which could lead to improved outcomes in smaller classes, and continue to teach using the methods required for larger groups (Betts & Shkolnic 1999; Evertson & Randolph 1989; Graue et al. 2009). Teachers of small classes who do not alter their pedagogical techniques to take advantage of small class teaching may not, therefore, facilitate improvements in educational attainment.

School Resources

School resources can encompass many aspects of school spending such as: overall expenditure per student; interventions including additional spending on technology, infrastructure and material resources; or staff costs (Vignoles et al. 2000). A number of reviews in the US context have argued that there is not a strong consistent relationship between expenditure on schools and the educational outcomes of pupils (Burtless 1996; Hanushek 1986; 1989; 1997; Hanushek et al. 1996). Although, Hanushek (2008) notes that many of the research studies available suffer from methodological weaknesses (see also Hedges et al. 1994; Laine et al. 1996).

Steele *et al.* (2007) note that a major weakness in the evidence base is the lack of control for unobserved characteristics of schools (e.g. school intake characteristics) which affect both the funds allocated to schools and the attainment of pupils (i.e. in the UK schools with higher concentrations of lower attaining pupils gain additional funding per child). Ignoring the relationship between funding and pupil characteristics is likely to obscure the true relationship between resources and educational outcomes. Studies that take into account pupil characteristics have found statistically significant positive effects of resources on educational outcomes (Dearden et al. 2001; Dolton & Vignoles 2000).

Holmlund *et al.* (2010) studied the effects of school expenditure on pupils in the final year of primary school over school years from 2001/02 to 2006/07, where school expenditure increased about 40% in real terms in the UK. This study controlled for various aspects of schools and pupils. The results indicate that increased school expenditure was significantly associated with test scores, and that expenditure has a higher effect for those children from economically disadvantaged backgrounds. Although, Gibbons and McNally (2013) emphasise that the effect of increased resources found in Holmlund *et al.*'s (2010) study was very small. Steele *et al.* (2007) also took pupil and school characteristics into account in their study of the educational attainment of pupils at age fourteen and found that additional resources had a positive effect on attainment in Mathematics but not English. This evidence again suggests that there can be positive effects to increased school resources, although Steele et al. (2007) note more research is required to establish the extent to which schools are differentially effective in using resources to improve attainment in specific subjects (e.g. mathematics).

The Pupil Premium policy was based on the need for additional resources to support the needs of children in poverty, this scheme distributed additional funds to schools on the basis of the numbers of children eligible for free school meals and the numbers of children who were living in care. Other than a survey of schools that gives a general indication of how the Pupil Premium money was used (Carpenter et al. 2013), there are no evaluations which indicate whether this policy to distribute increased funds to disadvantaged pupils has been effective.

Overall, the most recent and methodologically refined research evidence tends to indicate that school resources do have a positive effect on pupil outcomes, although more research is required on this topic. Notably, the available evidence does not elaborate on the processes and mechanisms by which increased resources and expenditure on schools leads to positive effects.

Do teachers vary in quality?

There are great difficulties in the measurement of differential teacher quality, commensurate with the complexities of measuring school quality described previously. Teacher effectiveness can be defined according to the performance of pupils, or more often the improvement in pupils' performance. Other research focuses on ratings from instructors or more senior teachers, or even comments from pupils and parents. Studies that provide objective evidence on the influence which teachers can have on student outcomes generally relate to the extent to which test scores vary between classes taught by different teachers, after characteristics of the classes (e.g. social background or prior attainment) have been taken into account. Gorard and See (2013) note that pupil performance may be influenced by differential aspects of learning in classes separate from the effects of teachers, such as subject and syllabus. The prior attainment of pupils, their talent and motivation can also influence test performance regardless of teacher influence (Gorard & See 2013). Estimates of the quality of teachers can also be biased by the characteristics of school-intakes and the sorting of pupils into classes (Meghir & Palme 2005; Rothstein 2010).

The research evidence, which has taken account of these school and pupil characteristics, have demonstrated that a substantial amount of variation in pupils' test scores can be attributed to teacher effectiveness (Hanushek 1971; Hanushek & Rivkin 2010; Kane & Staiger 2008; Rivkin et al. 2005; Rockoff 2004; Sanders & Horn 1994). Variation between teachers can be substantial, Gordon *et al.* (2006) find that pupils taught by teachers in the top quartile scored on average 10 per cent higher than teachers in the bottom quartile of effectiveness. These teacher-related gains may also be particularly important for pupils from disadvantaged backgrounds (Aaronson et al. 2007; Hanushek 1992).

However the differences between teachers are not easily measured by simple characteristics such as qualifications or experience (Rivkin et al. 2005). There are studies that aim to describe the common characteristics of the most effective teachers, however much of this research is based on case studies or interviews and not objective analysis. There is a lack of consistent evidence linking variations in pupil performance attributable to teachers and measurable characteristics of

teachers, which explain why variation exists (Hanushek 1986; Rockoff 2004). There is therefore no clear consensus on what a high quality teacher looks like and more research is required to identify the reasons why teachers vary in effectiveness (Hanushek & Rivkin 2006).

Teacher Recruitment and Training

Schools serving poor children face difficulties in recruiting and retaining highly qualified staff (Lupton 2005; OFSTED 2013). Given the importance of teacher quality to children's outcomes, there is a clear role for initiatives to improve standards within the teacher profession in general, and in particular to incentivise excellent teachers to teach in schools serving poor children.

Recently two schemes have been introduced which aim to attract high quality university graduates to teaching: The School Direct Scheme and the Teach First Programme. Both of these schemes represent a move away from traditional university based training programmes for new teachers, involving a combination of intensive short courses, school based training and almost immediate immersion in the teaching profession. The School Direct Scheme aims to attract high-quality graduates and provides an employment based route to a teaching qualification, however this scheme has not yet been evaluated and there is no data on its effect on teacher recruitment.

The Teach First programme is focused specifically on encouraging the best quality university graduates to teach in schools serving economically disadvantaged groups of children, which typically struggle to recruit and retain high-quality teachers. Teach First involves six weeks of initial training, before participants take on 80% of a standard teaching load in a struggling school. The participants are given continued mentorship and support over a two year period before gaining a teaching qualification. Teach First has grown dramatically from 186 participants based only in London schools in the year 2003/04 to 1000 participants throughout England and Wales in the year 2012/13 (Allen & Allnutt 2013).

There have currently been two evaluations of the Teach First programme which both indicate that this approach to recruitment and training of high quality teachers has positive effects on pupils and schools more widely (Allen & Allnutt 2013; Mujs *et al.* 2010). Mujs *et al.* (2010) used a quasi-experimental design to study the effect of the Teach First programme on pupil outcomes once taking differential aspects of schools and pupils into account. The study showed positive and substantial impacts on attainment in GCSE performance at age 16 (Mujs *et al.* 2010). Allen and Allnutt (2013) also find that the programme has positive effects on GCSE attainment, furthermore a positive effect of the Teach First programme is found throughout the whole school and not just those pupils taught by Teach First teachers. Allen and Allnutt (2013) suggest that the presence of high quality university graduates in these struggling schools could also be encouraging improvement in the teaching standards and practice of other teachers.

Teach First Teachers represent a very small proportion of new teachers in the UK, however the evidence suggests that this programme is effective and extension could

provide benefits to children from disadvantaged groups. However, the continued success of the Teach First scheme will depend on the number of these high quality graduates who decide to remain in the teaching profession long-term. Allen and Allnutt (2013) note that retention rates of Teach First participants do appear to have risen throughout the programme, but that this could be due to current levels of graduate unemployment and lack of other labour market opportunities (Allen & Allnutt 2013). Moreover, further research is required to identify the specific characteristics of Teach First participants which mediate improved educational outcomes, particularly in terms of classroom processes. This research is required to identify the characteristics of these high quality teachers in order to inform wider teacher improvement strategies.

Teaching Methods

There is a considerable body of evidence regarding the effectiveness of specific teaching methods, which may help to improve the educational attainment of children and young people. There is a great deal of evidence regarding what best helps children learn to read, write and spell. Reviews of the evidence have generally emphasised the importance of phonics in teaching (i.e. where children are taught to identify and manipulate units of sound) (Brooks 2007; Harrison 2000; Rose 2006; Torgerson et al. 2006). A strong focus on phonics has not always been a central feature of literacy education in the UK (Rose 2006), but has recently been increasingly emphasised in classroom practice.

In a longitudinal analysis of the effect of phonics teaching methods, Clackmannanshire Johnston and Watson (2005) found that, despite the expectation that children from advantaged families would outperform their more disadvantaged peers, there were no significant differences in reading and spelling performance observed until the final year of primary school and no significant differences for reading comprehension until primary year five for children in the synthetic phonics treatment group. This study therefore provides tentative evidence that phonics teaching can delay the development of socio-economic differentials in educational attainment, although more research is required to confirm this pattern of results (Johnston & Watson 2005). Although, it is not clear whether these socio-economic inequalities in attainment were reduced in the long-term as a result of this teaching method.

Several studies have examined the impact which the use of technology in the classroom (e.g. personal computers, educational software, internet resources) has on pupils' educational attainment. Kulik (2003) highlights that there is currently a weak body of evidence on the effectiveness of technology in improving pupil outcomes, although evaluation studies suggest that technology is becoming an increasingly effective aspect of teaching for both primary and secondary school pupils. Tamim *et al.*'s (2011) meta-analysis of existing reviews in this area found a consistent and positive effect of the use of technology in the classroom on pupil outcomes, although effect sizes were often small. Studies of the use of specific forms of technology, such as interactive whiteboard technology, suggest that teaching methods that utilise new technology can be effective in improving children's educational outcomes and in reducing educational inequalities (Lopez 2010). However these effects have also been found to be small and short-term (Higgins

2010). The way teachers use technology in the classroom and its combination with other classroom processes may mediate its success; further research is required in this regard (Higgins 2010; Lopez 2010).

Mastery or individualised learning is based on the principle that inequalities in education are caused by a lack of individualised instruction in the classroom. The practice of mastery learning involves splitting learning material into concepts or skills that involve small blocks of learning time to master. Following initial instruction, pupils continue to study those particular aspects which they have not accomplished until they are successfully mastered. The evidence base indicates that mastery learning can result in improved educational outcomes (Anderson 1992; Kulik et al. 1990; Whiting et al. 1995). Kulik *et al.*'s (1990) meta-analysis of studies in this area also found that mastery learning techniques can be particularly effective at improving the attainment of low-attaining students and may smooth out differences in the performance between low and high attaining groups.

Meta-cognitive and self-regulation strategies (learning to learn) are another area where successful interventions have been identified (Schunk 2008). These strategies involve teaching pupils to think about the processes of learning themselves, to set goals and to monitor their own learning as they master new skills and subject matter. Meta-analyses on the effectiveness of these approaches have shown that these teaching methods have been effective (Dignath et al. 2008; Haller et al. 1988).

Evidence on effective teaching interventions is growing⁵; the evidence here has summarised several teaching methods that have been found to improve pupil's learning: phonics techniques, effective use of new technology, mastery/individualised learning, meta-cognitive and self-regulation strategies. Although more evidence is needed on specific techniques which can improve the attainment of children in poverty in particular, these techniques provide a useful basis to improve the attainment of poorly-performing pupils.

Curriculum

Compared to other European countries, the school curriculum in England and Wales allows students to narrow their future choices at a relatively early age (Hodgson & Spours 2008). The complexity and variability of the curriculum offered both between institutions and between pupils increased under the Labour government of 1997-2010. The combination of the proliferation of GCSE 'equivalent' qualifications with league tables of school performance led to concerns regarding schools maximising their performance at the benchmark 5 A*-C level by putting students in for 'soft' options, and avoiding more challenging subjects. Evidence has been presented that schools have played the system by pushing young people through qualifications of questionable value in terms of future educational and labour market chances (Wolf 2011). These pressures have led to a decline in the take-up of modern languages and demanding science options.

⁵ The Education Endowment Foundation provides a toolkit of information on effective teaching methods <http://educationendowmentfoundation.org.uk/toolkit>

Research has documented a social hierarchy of 14-16 subjects, with sciences and languages at the top and vocational subjects at the bottom, and pupils with less highly educated parents are most likely to study the least prestigious subjects, despite no substantial differences in which subjects pupils say they like and dislike according to parents' education (Sullivan et al. 2010b). Clearly pupils subject 'choices' are driven partly by institutional constraints, and there is a need for more research on how curriculum differentiation between and within schools is affecting the prospects of poor pupils. Historical evidence from the 1958 cohort study (Iannelli 2013) shows that the social mobility advantage of pupils at selective schools was entirely explained by differences in the chances of taking high-return subjects such as languages, sciences, English and maths, which had greater payoffs for the attainment of higher levels of education and more advantaged occupational positions. Evidence on university access from 1996-2006 demonstrates the importance of gaining A levels in 'facilitating' subjects, i.e. maths and sciences, English, languages, geography and history for successful application to a place at a Russell Group university (Boliver 2013). Social class differences in access are partly accounted for by social class differences in the A level subjects that young people have taken.

As well as the question of which subjects pupils should study, there is a related debate about the content of specific curricula, e.g. what should be taught in English or history. The question of what kind of curriculum would be best for disadvantaged children's learning is a complex one, but it is surprising how little empirical evidence exists in this field. The debate over what kind of curriculum would be most helpful to working class pupils has been ideologically charged, but this is not a simple 'left vs right' disagreement. The 'new' sociology of education in the 1970s proposed that the curriculum and what counts as knowledge should be the central questions to be addressed by sociologists of education (Young 1971). This movement was concerned primarily with critique rather than empirical evidence, and was criticised for raising philosophical rather than sociological questions (Pring 1972). It was attacked from a Marxist perspective, on the grounds that "...its relativist position with relation to knowledge...provides a new ideological means of denying to the working class access to knowledge, culture and science" (Simon 1976), p. 273). Young (1999, 2007) has acknowledged the force of this criticism, stating that it does disadvantaged children no favours to structure the curriculum around their knowledge, rather than allowing them to move beyond it; and acknowledging that the 'new' sociology of education failed to provide positive proposals regarding the curriculum. Subsequent sociological work has continued to argue that the curriculum is implicated in educational inequalities (Whitty 1986), and that institutions play a role in shaping socially stratified curriculum tracks and 'choices' (e.g. Ball 1981, Gillborn and Youdell 2000). Curriculum differentiation within and between schools is driven and justified by the discourse of 'diversity', 'choice', 'relevance' and 'personal learning'. Yet this rhetoric ignores the social structures within which students make their 'choices', and the potential consequences of these pathways for future inequalities in both education and the labour market (Sullivan and Unwin 2011). For all the theoretical debate that has been generated on the role of the curriculum however, there is a pressing need for more empirical evidence in this area, in order to address the question of what curriculum should be provided in primary and secondary schools.

Classroom Assistance

The deployment of teaching assistants is a key strategy used to support the learning of low attaining pupils. Teaching assistants may provide benefits by helping pupils who struggle with learning, behaviour and attainment (Blatchford et al. 2009a). However there have also been concerns that teaching assistants can act to discourage independence, responsibility and cause segregation between struggling students and their peers which may lead to lower levels of attainment (Giancreco et al. 1997; Moyles & Suschitzky 1997).

Farrell *et al.*'s review (2010) of the literature suggests that general teaching assistant support directed at struggling children within classes can have a positive impact on educational attainment, particularly in literacy and language for pupils who are experiencing learning difficulties. Notable studies have, however, found that teaching assistant support for struggling pupils does not necessarily lead to achievement gains. Blatchford *et al.*'s (2011) longitudinal analysis using teacher reports, systematic observation and pupil test scores found that pupils receiving the most support made less progress than similar pupils with less support, even after controlling for characteristics of the pupil and their prior levels of performance. In other words, struggling pupils are actually disadvantaged further by being allocated support from a teacher assistant. Muijs and Reynolds (2003) used a quasi-experimental study to investigate the effect of teaching assistants on the mathematics performance of struggling pupils in the first two years of primary school. The results indicated that those pupils who received additional support did not make more progress in their mathematics attainment than similar pupils who did not receive teaching assistant support, indicating that support in itself does not necessarily lead to improvements in educational attainment.

Two recent studies have suggested that there may be benefits of teaching assistant support when TAs are charged with providing specific interventions to assist children's learning. The Switch-On Reading programme is an intensive 10-week intervention where pupils receive 20 minute one to one support. Each session involves a structured programme of reading from four different books, and teaching assistants are trained to effectively provide the programme (Gorard et al. 2014). Similarly, the Catch-Up Numeracy programme is a 30-week one to one intervention provided by teaching assistants in two 15-minute sessions per week and is based on teaching key components of numeracy skills (NFER 2014). Both programmes had a positive effect on the test scores of pupils who took part in the programme (NFER 2014) (Gorard et al. 2014). Notably in the evaluation of Catch-Up Numeracy, pupils who attended the equivalent time of one to one support from a teaching assistant but did not receive the Catch-Up Numeracy programme showed similar gains in their attainment, suggesting that one to one teaching was effective (NFER 2014). Nevertheless, focussed sessions tailored to the needs of individuals within classes may be equally effective, and more evidence is required in order to establish the reason why this one to one support was effective. Additionally, pupils were required to leave their class group for these sessions and may therefore have fallen behind in other areas of the curriculum. There is also no evidence on the longitudinal effects of one to one assistance, and the extent to which these interventions are effective for children in poverty rather than just children who have fallen behind in reading and maths.

Evidence has suggested that teaching assistants could have wider influences on classroom processes. The presence of teaching assistants in the classroom allows for: more pupil and teacher interaction; increased individualised teacher attention to all pupils; and improved classroom control (Blatchford et al. 2009c; Blatchford et al. 2007). However, the evidence also indicates that this has not translated into significant improvements in educational attainment of whole class groups (e.g. reducing the burden on teachers did not seem to lead to whole class improvements) (Blatchford et al. 2009c; Blatchford et al. 2007; Farrell et al. 2010).

Conclusions

School and teacher quality is hard to define and measure. Much of the variation in pupil performance in standardised examinations can be accounted for by influences outside of school. Variation between schools and teachers in the performance of their pupils can often be largely attributed to school intakes and pupil characteristics. Nevertheless, variation between schools and teachers can be identified once these exogenous features have been taken into account.

Overall there are many weaknesses in the evidence base, which have been emphasised throughout this chapter. Adequately controlling for pupils characteristics is complex and is often hindered by the lack of data or the poor quality of available data. Much of the research on school and teacher quality also involves 'black box' explanations of effectiveness, whereby we know that an intervention or characteristic is effective but we are not able to identify why. Further research on the classroom processes that mediate the effects of school and teacher characteristics on pupil performance is required in order to develop the most effective strategies to improve the attainment of children living in poverty.

In this chapter we have identified several characteristics of children and schools, which give some indication of effective strategies for improving the attainment of pupils:

- There is clear evidence that effective approaches to discipline in schools are authoritative, involving the expectation of high standards of behaviour alongside positive and warm relations between teachers and students and responsiveness to pupils' needs. Authoritarian approaches, which involve blind obedience and military style relationships between pupils and teachers, are not the most effective.
- There is a lack of clear evidence on the effect that increased time spent in school has on pupil outcomes. Improvements which can be made to the use of the teaching time already available to children may be a clearer initial focus before any attempts are made to increase the amount of time children spend in school.
- Within school ability grouping (i.e. streaming and setting) does not seem to influence educational attainment.
- Class size reductions can be effective, but generally only for pupils in the first year of primary school and only when a relatively large reduction in pupil numbers is made.

- Increased resources can have positive effects on the attainment of pupils. However, there is no clear evidence of the mechanisms leading to this improvement (i.e. what is increased expenditure spent on which leads to improvements).
- There are large variations in performance which can be attributed to differences between teachers. Qualifications are one indicator of teacher effectiveness, but more research is needed on the other characteristics of the more effective teachers.
- The Teach First programme to recruit high quality graduates as teachers for struggling schools has a positive effect on pupils' attainment and on school performance more widely.
- There is a strong evidence base on the effectiveness of specific teaching methods. Literacy education based on phonics, mastery learning and the use of technology in the classroom can all be effective in improving educational attainment. There is also tentative evidence that phonics teaching methods can delay the development of socio-economic differentials in reading, spelling and reading comprehension.
- The curriculum in England and Wales allows children to narrow their options at an early age, in a way which may disadvantage poor children and affect their social mobility chances. The different curricula offered by different schools may exacerbate this. More research is needed in this area.
- Recent large scale studies have suggested that pupils receiving additional support from teaching assistants within general classroom settings do not achieve gains in their attainment. Studies have not shown an improvement in whole class test results as a result of the presence of teaching assistants. Although there is some emerging evidence that one to one attention from teaching assistants outwith normal classes improve the attainment of children who have fallen behind in Reading and Numeracy.

Chapter 5: Specific Interventions

A large number of varied interventions have been introduced in the last few decades in an attempt to improve the performance of schools, and the attainment of children living in poverty in particular. This chapter summarises evidence regarding the success of specific educational interventions in improving educational attainment, participation and wider outcomes. We begin by highlighting the overall conclusions of some previous evidence reviews (see for example Griggs *et al.* 2008; Heath *et al.* 2013; Machin & McNally 2006; Raffo *et al.* 2007), before turning our attention to specific interventions of interest.

Reviews of the evidence

Raffo *et al.* (2007) conclude that the success of educational interventions has been limited as initiatives have failed to address the multiple influences on educational attainment. Raffo *et al.* (2007) highlight that interventions have generally focussed on only schools and individuals and have neglected to address the 'macro' level structural nature of poverty, resulting in limited success. Similarly, Machin *et al.* (2006) argue that in order to be most effective, education policy and social policy needs to be complementary. Machin *et al.* (2006) also note that substantial investment is required in order to address educational inequalities, and that the role of education in reducing child poverty needs to be seen as a long-term strategy.

Griggs *et al.* (2008) note that, overall, the scarcity of evaluations of specific interventions makes conclusions limited. This sentiment was echoed by Heath *et al.* (2013) whose conclusions came with the caveat that in many cases there was a lack of clear support for an intervention due to a scarcity of research evidence, rather than negative findings.

Heath *et al.* (2013) present an overview of policies implemented under the 1997-2010 Labour government; the coverage of this review and the available evidence is summarised in Table 6.1. This provides a comprehensive overview of specific education policy interventions and highlights the availability of evaluation evidence. Heath *et al.* (2013) argue that interventions have often been introduced in a way that prohibits rigorous evaluation, therefore highlighting that an important element of any new educational intervention should be carefully considered plans for rigorous evaluation from the outset. Heath *et al.* single out two interventions for which rigorous evidence of positive benefits exists. These are the National Literacy Hour (evaluation by Machin and McNally 2008) and Education Maintenance Allowances (evaluation by Dearden *et al.* 2009).

Table 6.1: Policies and Evaluation Evidence, reproduced from Heath <i>et al.</i> (2013)	
Quasi-market reforms, parental 'school choice'	
Date	1980s onwards
Evaluated	No
Other evidence	
	Little evidence of effects on attainment overall (Gibbons et al. 2008). There is no consensus that market reforms have increased school segregation (Goldstein & Noden 2003; Gorard & Fitz 1998).
National tests and league tables	
Date	1990s onwards
Evaluated	No
Other evidence	
	Clearly test scores and examination results have improved, but questions remain over the extent to which this reflects real learning gains for pupils. Some unintended consequences include a focus on 'borderline' pupils (Gillborn & Youdell 2000), and distortions in the curriculum offered to maximise league table performance (Wolf 2011).
Specialist schools	
Date 1997	1997
Evaluated	Yes
Main report	Levacic and Jenkins (2006)
Results	Schools applied for specialist status, and, if successful, were awarded additional funding. This selectivity into specialist status poses obvious problems for any evaluation. Levacic and Jenkins (2006) conclude that "taken overall the superior effects of specialist schools are modest in size, not uniform across specialisms and dependent on the assumption of no selection bias in specialist school recruitment that is not controlled for by the observed pupil data".
Other evidence	Gorard and Taylor (2001) found that specialist schools have shown a greater tendency to take proportionately fewer children from poor families over time, especially where these schools are also their own admission authorities.
Cut in class sizes	
Date	1997
Evaluated	No
Other evidence	It benefited suburban rather than inner-city constituencies as, due to falling rolls, inner city schools already had few classes of over 30 children (Sullivan & Whitty 2007).
The Literacy Hour	
Date	1998
Evaluated	Yes
Main report	Machin and McNally (2008)
Evidence	Substantial improvements in reading and English for modest cost.
National Numeracy and Literacy strategies	
Date	1998

Evaluated	Yes
Main report	Earl <i>et al.</i> (2003)
Other evidence	The evaluation was based on school visits and analysis of performance data. The authors acknowledge that it is difficult to draw conclusions about the effects of the strategies on pupil learning, although Key Stage attainment rose. The methods employed by the evaluation are not greatly convincing, see Goldstein (2003) http://www.bristol.ac.uk/cmm/team/hg/evaluating-the-evaluators.html
Sure Start	
Date	1998
Evaluated	Yes
Main report	Belsky <i>et al.</i> (2007)
Evidence	Early results were not encouraging, and showed some disadvantage to living in sure start areas for disadvantaged families, possibly due to services being taken up by the more advantaged. Later results were much more positive, but it is not clear whether the difference in results should be attributed to improvements in Sure Start services, or to differences in the methods used in the earlier and later evaluation. The earlier evaluation compared children and families in SS areas and control areas (later to become SS areas) at the same time. The later evaluation used MCS families, with children born on average 2 years earlier than the Sure Start sample, living in similar areas with no Sure Start programme.
Tuition fees	
Date	1998 (variable fees introduced in 2003)
Evaluated	No
Other evidence	Galindo-Rueda <i>et al.</i> (2004) state that there is a widening gap in participation between richer and poorer students, but not as a direct impact of tuition fees, as it occurred prior to this.
Teaching Assistants	
Date	1999
Evaluated	Yes
Main report	Blatchford <i>et al.</i> (2009b)
Evidence	Teaching assistants reduce teachers' stress levels and improve classroom discipline but do not boost pupils' progress. Instead, children with the most TA support actually made less progress than similar children with less support, and this could not be explained by the children's characteristics.
Excellence in Cities	
Date	1999
Evaluated	Yes
Main report	Kendall <i>et al.</i> (2005), and Machin <i>et al.</i> (2005)
Evidence	A cost-benefit analysis suggested that EiC was potentially cost-effective in terms of long-term wage returns to improvements at Key Stage 3. The evaluation stresses the complexity of strand and area based initiatives, where partnerships have freedom to implement EiC and its individual strands as determined by local needs. The strongest benefits were for children of medium to high ability in disadvantaged schools.

Academies	
Date	2000
Evaluated	Yes
Main report	PricewaterhouseCoopers (2008)
Evidence	Some evidence of improvement, but concerns that "some Academies have used vocational courses to secure higher and faster improvements in attainment" and also that exclusions are higher in academies than in comparable schools.
Other evidence	Curtis <i>et al.</i> (2008a) find a mixed picture on attainment within academies, and argue that gauging effects on neighbouring schools is difficult.
Modularisation of A levels and GCSEs	
Date	2000
Evaluated	No
Introduction of new vocational qualifications, including at 14-16	
Date	2000
Evaluated	No
Other evidence	Wolf (2011) points out that most English young people now take some vocational courses pre-16, and the majority follow largely vocational courses post-16. Wolf finds that large number of young people are taking qualifications which the labour market does not reward at all, and young people have been encouraged to take 14-16 options which block their progression to more valuable post-16 options.
Teacher performance related pay	
Date	2000
Evaluated	No
Pupil learning credits scheme	
Date	2001-2003
Evaluated	Yes
Main report	Braun <i>et al.</i> (2005)
Evidence	A difference in differences analysis suggested that the policy had a positive effect. An attempt to relate the costs of the pilot scheme to these benefits concluded that the pilot scheme was cost effective, although this was based on some strong assumptions.
Aim Higher: Excellence Challenge	
Date	2001
Evaluated	Yes
Main report	Emmerson <i>et al.</i> (2006)
Evidence	Aimed to raise FE and HE participation among young people from disadvantaged backgrounds. An analysis of the Labour Force Survey comparing areas in which the policy was implemented to control areas did not find statistically significant results.
Teach First	
Date	2002
Evaluated	Yes
Main report	Muijs <i>et al.</i> (2010)

Evidence	The evaluation did not consider differences between children who were taught by Teach First teachers and others, but rather looked at differences between Teach First schools and other schools, using National Pupil Database data. Although causality cannot be demonstrated, the results are suggestive of strong positive effects, with 39-47% of the school level variance in GCSE results remaining after statistical controls being accounted for by Teach First status.
Gifted and talented	
Date	2002
Evaluated	No
Increase in faith schools	
Date	2002
Evaluated	No
Other evidence	Allen and West (2009b) find that faith schools create ethnic/religious segregation, and cater largely to the affluent.
Schools Interactive Whiteboard Expansion project (SWE)	
Date	2003/4
Evaluated	Yes
Main report	Moss <i>et al.</i> (2007)
Evidence	This mixed-methods study examined effects on teaching and learning; motivation, attendance and behaviour; and attainment at KS3 and GCSE. The statistical analysis found no impact on outcomes.
Education Maintenance Allowance	
Date	2004
Evaluated	Yes
Main report	Dearden <i>et al.</i> (2009)
Evidence	EMA increased initial participation of eligible young people by over 4% points, and also protected against drop-out.
Trust schools	
Date	2006
Evaluated	No

Area-Focussed Interventions

A number of education policies have been focussed on particular geographical regions on the basis that improving schools in disadvantaged areas is an effective means by which to influence the educational attainment of disadvantaged pupils. There are concerns over this approach (see Tunstall & Lupton 2003) crucially, families in poverty are not perfectly segregated from their more advantaged counterparts and therefore area-focussed interventions will benefit non-intended groups and will also fail to reach some children who are in need (Tunstall & Lupton 2003).

Excellence in Cities (EiC) was an intervention targeted at major urban areas of England in which large numbers of families experience poverty. EiC was a multifaceted policy which incorporated initiatives such as: providing additional support for children identified as gifted or talented; providing mentors for pupils in

challenging circumstances; providing learning support units for pupils who would benefit from learning outwith normal classroom settings; and providing state of the art computing and technology resources for selected schools (Kendall *et al.* 2005). There is evidence that EiC had a positive effect, Kendall *et al.* (2005) found an impact on Key Stage 3 mathematics test scores in the most disadvantaged schools and Machin *et al.* (2005) also found a small positive effect on attainment, particularly for pupils at the medium to high end of the attainment distribution in disadvantaged schools. Additionally, Kendall *et al.* (2005) found an overall reduction in absences in EiC schools. Machin *et al.* (2005) found that this was only the case for authorised absences and not unauthorised absences.

Education Action Zones (EAZs) were developed to tackle underachievement in disadvantaged areas by setting up partnerships between schools and local organisations and businesses. The aim was that EAZs would implement a range of new innovative activities; they were also encouraged to work with families and to provide learning opportunities for the wider community. There is very limited evaluation evidence of this intervention; a report of Ofsted inspections of EAZ schools suggests that the policy had contributed to raising standards, although this was not consistent across all schools (Ofsted 2001). The EAZ schools did not seem to be developing new ideas and practices as intended and the policy was criticised for encouraging the development of too many changes at once without evaluation. There was also concern that EAZs introduced an increased amount of bureaucracy into schools (Ofsted 2001). The evidence regarding whether EAZs were effective is extremely limited and therefore no clear conclusions can be drawn on whether it offered any overall positive benefits to children living in poverty.

The London Challenge was launched in 2003 with the aim of improving the educational outcomes of disadvantaged children who attended the city's worst performing schools. The intervention involved: help with teacher recruitment and retention; out-of-school opportunities for pupils; and leadership programmes. Schools in five struggling boroughs were given additional tailored assistance and failing schools were converted into Academies. The London Challenge was later expanded as the 'City Challenge' and rolled out in other English cities. Hutchings *et al.* (2012) find that the London Challenge contributed to reducing the number of under-performing schools in London and increasing the performance of children eligible for free school meals faster than the national average. There is also evidence that after the intervention ended its positive effects continued (Ofsted 2010).

Although there are concerns that geographically-focussed schemes are not always ideal for specifically targeting children in poverty, there is some evidence that area-based interventions can contribute to improved educational outcomes. Nevertheless the evidence base is weak in this area, particularly in relation to the effectiveness of Education Action Zones. These interventions are difficult to evaluate as they involved many simultaneous changes to schools and educational provision. Based on the evidence available it is not possible to identify which particular aspects of these interventions did or did not influence the educational attainment of children in poverty.

National Numeracy and Literacy Strategies

National strategies for improving teaching and learning in literacy and numeracy were introduced in 1998 and 1999 respectively. The strategies aimed to bring about a drastic improvement in children's capabilities in English and mathematics (Ofsted 2003).

The National Numeracy Strategy (NNS) was a systematic reform of teaching practice in English primary schools. The initiative involved the introduction of daily mathematics lessons based on teaching templates and suggested weekly lesson plans. The use of whole-class teaching methods was encouraged and teachers were offered training to help them effectively implement new teaching strategies (Kyriacou 2005). Teachers have reported that the NNS led them to change their teaching practices and that their teaching skills have improved as a result of the training which they received (Earle et al. 2003). There is also evidence that the intervention helped to raise average standards of attainment, although there was no evidence that the strategy reduced the attainment gap between the highest and lowest attaining pupils (Brown et al. 2003). Nevertheless, there have been concerns that a focus on whole-class teaching and strict time management may not effectively address the needs of low attaining pupils (Kyriacou 2005). Furthermore, gains in attainment may be due to a closer match between what the pupils were taught and test content, rather than an overall improvement in mathematical understanding (Kyriacou 2005). Unfortunately, the National Numeracy Strategy was not implemented in a way that allowed for rigorous evaluation, so claims made for the NNS are inevitably uncertain.

The National Literacy Strategy (NLS) aimed to tackle illiteracy by improving standards of literacy education in primary school. A key aspect of the literacy strategy was a daily structured 'literacy hour', which follows a well-designed and systematic structure of activities with clear indications of how the time in this hour should be spent. Before the NLS was rolled out throughout England, a number of struggling schools took part in the National Literacy Project (NLP) which included the literacy hour. This initial implementation of the intervention was rigorously evaluated, and the results showed substantial improvements in pupil performance at a relatively low cost (Machin & McNally 2004). There was also evidence that for the first cohort of pupils who were exposed to the literacy hour, positive effects were apparent in their subsequent GCSE English attainment at age 16 (Machin & McNally 2004). Machin and McNally's (2004) analysis also highlighted that the intervention had a strong effect on improving the performance of pupils with lower prior levels of attainment, as well as those with high levels of attainment. Sainsbury *et al.* (1998) found that pupils exposed to the literacy hour made significant progress in their attainment, had sustained enjoyment of reading, and the amount of additional assistance they required with learning decreased (Sainsbury et al. 1998). A report by Ofsted (2003) concludes that the national numeracy and literacy strategies had a major impact on the content and nature of the primary school curriculum.

Full Service Extended Schools

The Full Service Extended Schools (FSES) initiative involved developing schools that provide a range of services beyond the usual provision of schools and beyond the

school day. The aim was to provide a full range of support to children, families and communities in disadvantaged areas (DfES 2003). The services provided included: 'wrap around' child care before and after the school day; homework clubs; out of school study support; and sports and activity clubs. The FSESs also developed close links with specialist support services such as speech therapy, behaviour support services and mental health services (DfES 2003).

There are very few studies of the impact of FSESs on educational outcomes. Cummings *et al.* (2007) found that although test scores were poorer overall in FSESs, which would be expected as they were developed in deprived areas, the attainment gap between pupils eligible for free school meals and their more advantaged counterparts was smaller in FSESs. However, as Cummings *et al.* (2007) note, this could not necessarily be attributed to FSES status and many schools in deprived areas already had in place initiatives to help the most disadvantaged children which may have biased the results. This evaluation did not study change over time, or compare FSESs with similar non-FSESs, which make it hard to draw strong conclusions on the effectiveness of this initiative. Due to the number of changes made as part of this initiative, it is also hard to identify which of the extended range of services were more or less effective.

Parental Involvement

Many educational interventions have focussed on increasing parental involvement in education in an attempt to improve attainment and reduce educational inequalities (see Cummings *et al.* 2012). Indeed, numerous studies have shown that parental involvement is associated with positive educational outcomes such as attainment, behaviour and attendance (Mattingly *et al.* 2002). Meta-analyses by Jeynes (2005) and Fan & Chen (2001) have concluded that there is an association between parental involvement and educational attainment (see also Desforges & Abouchaar 2003).

Nevertheless there is limited evidence with mixed results on whether the involvement of parents can be increased through interventions and whether attempts to increase parental involvement can result in improved outcomes (Desforges & Abouchaar 2003). Castro and Lewis's (1984) review of the literature on interventions to increase parental involvement in early years education found little evidence that these initiatives were particularly effective. Notably, they found that interventions which included aims to increase parental involvement were no more successful than those which did not. Mattingly *et al.*'s (2002) review of the available evidence also found little support for parental involvement initiatives as effective means by which to improve educational outcomes.

Looking to specific parental involvement programmes in UK education, the results are mixed and the evidence base is weak. The 'Engaging Parents in Raising Achievement Project' was implemented in over 100 secondary schools in England and involved school based activities, such as: providing parents with the knowledge and skills required to help their child with their education; engaging parents who had little or no qualifications themselves; using technology to keep parents informed of their child's progress; and visits from support officers (Harris & Goodall 2007). The evaluation of this initiative involved a qualitative analysis of 20 schools and found that

parents were generally encouraged to be involved in enjoyable school activities but that there was little focus on improving learning in the home (Harris & Goodall 2007). There were reports of improved attendance, behaviour and attainment. However there was no direct analysis of test scores and it is very hard to come to generalisable conclusions based only a small number of case studies.

The 'Families and Schools Together' (FAST) programme aims to connect the cultures which children experience in home and school and involves a series of after school activities involving both parents and children. In an evaluation of the piloting of FAST in 15 primary schools in the UK, teachers reported that fewer children participating in FAST fell in the lowest 30% of the attainment distribution (McDonald & Fitzroy 2010). Furthermore, survey responses by parents showed that the vast majority felt they were better able to support their child as a result of the programme (McDonald & Fitzroy 2010). However there is again no direct evaluation based on the pupils' test scores, analysis of changes over time or comparisons to similar children who were not involved in the programme.

Overall it is important to emphasise the conclusion of Mattingly *et al.*'s (2002) review, that the evidence in this area is of relatively poor quality. The parental intervention policies discussed here have not had rigorous evaluations which would allow strong conclusions on the effectiveness of the programmes. There is also the possibility that parents who are already more motivated and involved in their child's education will self-select into programmes which aim to improve their child's attainment. Although there is clear evidence that parental involvement is associated greater attainment, there is at this time little solid evidence which suggests that interventions to improve parental involvement are effective.

Education Maintenance Allowance

The Education Maintenance Allowance (EMA) was designed to encourage young people aged from 16 to 18 from disadvantaged backgrounds to remain in education after the end of compulsory schooling. The intervention was first piloted in 1999 and was extended in the next few years; in 2010 eligible pupils received a means-tested payment of up to £30 per week. The programme has since been abolished in England, although the scheme remains in place in the rest of the UK.

There is a large volume of rigorous evidence available on the success of the EMA, which generally shows positive effects on educational participation and attainment. Dearden *et al.* (2005) find that the percentage of young people from low-income families who completed two years of post-compulsory education increased by 6.2 percentage points as a result of the EMA. Middleton *et al.* (2004) also found that the EMA increased participation. Importantly, the young people who remained in school were drawn from both those who would have been employed and those who would have been inactive (Dearden *et al.* 2005). Ashworth *et al.* (2002) report that over half of those young people who stayed on in education as a result of the EMA would have otherwise been not in education, employment or training (NEET). Chowdry *et al.* (2008) found that the EMA increased both participation and attainment, with significant increases in A-Level performance. In particular, Black females showed strong and significant improvements in their attainment (Chowdry *et al.* 2008).

Looking in more detail, Ashworth *et al.* (2002) found that the scheme was most effective for those who received the highest amount of money, with non-significant effects for those who only received a partial award. Furthermore, the effects did not appear to be significant for young people in rural areas, however this may be due to small sample sizes in these areas (Ashworth *et al.* 2002).

There is strong evidence that the Education Maintenance Allowance had overall positive effects on the educational participation and attainment of children from low-income families. Although the assumption behind the policy is that financial constraints force young people in poverty out of education after the compulsory school leaving age, the evaluations do not provide evidence on why this intervention was effective. Nevertheless, the evidence does strongly indicate that financial assistance is an effective intervention.

Attitudes and Aspirations

There have been a number of recent evidence reviews which have considered the role that parents' and childrens' attitudes and aspirations have on educational attainment (see Carter-Wall & Whitfield 2012; Cummings *et al.* 2012; Gorard *et al.* 2012; Menzies 2013; St Clair *et al.* 2011). There does seem to be clear evidence that there is an association between educational outcomes and the attitudes and aspirations of parents and children. Goodman and Gregg (2010) demonstrate that parental aspirations and attitudes to education vary strongly by socio-economic status. Mothers from more advantaged backgrounds are more likely to state that they want their children to go to university than their more disadvantaged counterparts. These aspirations are associated with attainment at age 11 and at GCSE, after controlling for socio-economic status and prior attainment (Goodman & Gregg 2010).

However, reviews of the effectiveness of interventions which aim to change attitudes and aspirations indicate that there is no clear evidence of a causal relationship between attitudes, aspirations and educational outcomes (Carter-Wall & Whitfield 2012; Cummings *et al.* 2012). Cummings *et al.* (2012) find that we lack studies which test the effect that changes in attitudes have on attainment. They highlight that it could also be possible that attitudes and aspirations change as a result of raised attainment and not the other way round. Gorard *et al.* (2012) conclude that there is a lack of rigorous evidence and evaluations which would allow us to identify whether attitudes and aspirations had a causal influence on educational outcomes.

Overall, despite clear evidence that there is an association between attitudes, aspirations and educational attainment, there is no clear evidence of a causal relationship. Menzies (2013) argues that the real problem facing disadvantaged young people is not necessarily an absence of aspirations, but a lack of knowledge about how to achieve their aspirations. Carter-Wall *et al.* (2012) and St Clair *et al.* (2011) stress that rather than focussing only on aspirations, there is also a need to offer support, assistance and guidance to help young people achieve their goals.

Conclusions

The most clear conclusion from the summary of evidence provided in this chapter and previous reviews of specific educational interventions, is that conclusions regarding 'what works' are hampered by a lack of robust and rigorous evaluation evidence. Therefore, it is extremely important that future interventions be designed with evaluation in mind in order to ensure that the intervention is working, and to further improve successful interventions over time. Previous reviews have highlighted that educational interventions need to take into account the multiple influences on educational attainment, and particularly to address the fact that much of the influence on children's attainment comes from outwith school (Machin & McNally 2006; Raffo et al. 2007).

Looking to the evidence base on specific types of interventions we conclude that:

- Area focussed interventions such as Excellence in Cities can have a positive impact on educational attainment and attendance rates. The London Challenge and the City Challenge also seem to have positive effects on educational outcomes. However the evidence base on the effectiveness of these interventions is weak, and due to the multifaceted nature of these initiatives we are unable to identify which specific aspects of these interventions influenced attainment.
- The National Literacy Strategies had positive impacts on educational attainment at relatively little cost. There are indications that the National Numeracy Strategy also had a positive impact, but the evidence is less rigorous. This highlights that developing pedagogical techniques and classroom processes can have a positive impact on educational attainment.
- There is very limited evaluation evidence on the success of Full Service Extended Schools. Due to the different ways in which this intervention was enacted in different schools and the large number of changes made, it is difficult to evaluate this policy.
- The evidence indicates that children whose parents are more involved in their education have better educational outcomes. Nevertheless, reviews of the literature find that there is little evidence that interventions based on increasing parental involvement are effective. Evaluation of the 'Engaging Parents in Raising Achievement' project and the 'Families and Schools Together' project suggest that these initiatives did result in improved educational outcomes, however the evaluations available are very limited and are largely based on case studies and reports from parents and teachers, rather than rigorous analyses of attainment.
- There is very strong evidence that the Education Maintenance Allowance had positive impacts on participation in post-compulsory education and educational attainment. Evaluations of the EMA are of high quality.
- There is evidence that the attitudes and aspirations of parents and children are associated with educational attainment. However there is no evidence that attitudes and aspirations cause improved attainment. Reviews of interventions based on raising aspirations indicate that the evidence base is weak and that there is no clear evidence that attempts to change attitudes and aspirations will result in improved educational outcomes.

Chapter 6: Summary of findings and implications for policy and practice

- The social mobility chances of individual children may well be best increased via educational attainment. However, the overall level of poverty in society is driven by structural inequalities in our economy and society, which clearly cannot be addressed simply by reforming schools.
- While poverty matters, parents' education is an even more powerful predictor of children's educational outcomes. Not just financial, but also cultural, cognitive and social resources play a part. Clearly, policy and practice is likely to prioritise the worst off, but pupils who are not in poverty can still be relatively disadvantaged, for example the children of non-graduates have relatively low attainment, even if they are not in poverty.
- Given the importance of books in the home and reading for pleasure, future research should examine the potential role of library services, and the promotion of reading for pleasure within schools, as potential avenues to raise the attainment of those with few books in the home.
- Socio-economic differences in educational attainment trump both race and gender, and should be given the highest priority.
- Socio-economic differentials in education emerge early in life, but continue to grow throughout the school years, suggesting that early intervention is important but not sufficient.
- Although the UK education system has changed dramatically since the 1960s, and educational participation has increased enormously, social class relativities in attainment have been fairly stable, suggesting that changes such as comprehensivisation made less difference to inequalities than had been hoped. Although such changes opened up opportunities to pupils from poorer backgrounds, opportunities also increased for the better off at the same time. There is some evidence though of narrowing inequalities in school attainment during the period of the last government, 1997-2010. It is too early to assess whether this trend will be maintained.
- Research indicates that there is a stronger relationship between parental social background and children's test scores in the UK, or at least in England, than in many other rich countries. However, it is not possible to identify the extent to which specific features of the education system, as opposed to wider social policies, structural inequalities or cultural factors may lie at the root of this difference. Thus, it is important for policymakers not to draw simplistic conclusions such as 'they do x in Singapore/Finland, therefore x will work for us'.
- There is no robust evidence that any particular school structure or type is beneficial for improving the performance of poor pupils.

- Selective schools show greater pupil performance and progress, but are least likely to serve poor pupils. Therefore the existence of such schools may exacerbate inequalities.
- The effect of school composition is well established in the literature. Children who attend schools with a higher proportion of high-attaining pupils or pupils of high socio-economic status perform better than similar children in schools with a high proportion of poor and low-attaining pupils. This suggests that one way of helping poor pupils would be to decrease school segregation. Banding and school lotteries are both promising avenues for achieving this.
- It is important to recognise that much of the variability in school performance is due to pupil intake, and attempts to deal with this using 'value added' measures are not robust.
- Schools serving poor communities often face additional challenges, including dealing with children's emotional and behavioural problems.
- School resources have been shown to have a positive effect on attainment. This suggests that the pupil premium may be an effective mechanism to improve the attainment of poor pupils, though this has not been shown directly, and will inevitably depend on what is done with the money – it is vital that this should be evidence-based. There is a need to do more to engage school leaders with research evidence, and this may imply a need for training in research literacy.
- Cuts in class sizes can be an effective way to improve the attainments of the lowest attaining pupils, but only large cuts in class sizes in the first year of school are effective.
- There is far more variability in performance between individual teachers than between schools. Therefore, attracting effective teachers to schools serving poor children is likely to be vital to closing attainment gaps. Evaluations of the Teach First programme show positive results. It however remains to be seen whether Teach First can be expanded to further increase the pool of effective teachers in schools serving poor children – there may be limits on this unless the status and quality of the teaching profession overall can be raised.
- Classroom teaching methods matter, and there is evidence to support both the Literacy Hour and synthetic phonics teaching. These benefit children across the social spectrum, but may be most important for those who are at risk of falling behind in reading.
- There is evidence that poor children have less access to a demanding curriculum and high-value subjects. The implications of this demand further research in order to investigate the extent to which curriculum differences are disadvantaging poor children, and whether providing access to a high quality general curriculum can help to narrow the gap in attainment at school and subsequent educational participation. Arguably, the British school system has a historical problem with early curriculum choice, and this has the potential to exacerbate both gender

and socio-economic differentials, as young adolescents are making decisions which they are ill-equipped to see the long-term consequences of. Early curriculum choice has also contributed to the British skills shortage in numeracy and STEM. Policy innovations such as compulsory maths and English up to 18 have the potential to make a difference here.

- Many specific education interventions have been evaluated, but the evidence is not always clear cut. The Literacy Hour and Education Maintenance Allowance stand out as interventions with robust evaluations showing positive effects. Education Maintenance Allowances increased post-compulsory participation among poor pupils.
- Finally, we have focussed here on issues directly affecting schools. However, wider social policies are also likely to be relevant. Poor housing and frequent moves, parental stress and depression, and poor health are all factors which have an impact on children's educational attainment. Therefore, policies regarding health, welfare and housing are all likely to be important. In addition, adult education may have a role to play, given the impact of low parental education on children's attainment.

Bibliography

Aaronson, D., Barrow, L. & Sander, W. (2007) Teachers and student achievement in the Chicago public high schools, *Journal of Labour Economics*, 25(1), 95-135.

Allen, R. & Allnutt, J. (2013) Matched panel data estimates of the impact of Teach First on school and departmental performance. DoQSS Working Paper N.13-11, (London, Institute of Education).

Allen, R. and Burgess, S. (2010) The future of competition and accountability in education. 2020 Public Services Trust.

Allen, R., Burgess, S. & McKenna, L. (2013) The shortrun impact of using lotteries for school admissions: early results from Brighton and Hove's reforms, *Transactions of the Institute of British Geographers*, 38(1), 149-166.

Allen, R. & West, A. (2011) Why do faith-based schools have advantaged intakes? The relative importance of neighbourhood characteristics, social background and religious identification amongst parents, *British Educational Research Journal*, 37(4), 631-655.

Allen, R. & West, A. (2009a) Religious schools in London: School admissions, religious composition and selectivity, *Oxford Review of Education*, 35(4), 471-4494.

Allen, R. & West, A. (2009b) Religious schools in London: school admissions, religious composition and selectivity, *Oxford Review of Education*, 35(4), 471-494.

Anderson, L. W. (2000) Why should reduced class size lead to increased student achievement?, in: M. C. Wang & J. D. Finn (Eds) *How small classes help teachers do their best* (Philadelphia, Temple University), 3-24.

Anderson, S. A. (1992) A Mastery Learning Experiment, (Yale, MI, Yale Public Schools).

Ashworth, A., Hardman, H., Hartfree, H., Maguire, S., Middleton, S., Smith, D., Dearden, L., Emmerson, C., Frayne, C. & Meghir, C. (2002) *Education Maintenance Allowance: the first two years: a quantitative evaluation*.

Atkinson, A., Gregg, P. & McConnell, B. (2007) The result of 11 plus selection: An investigation into opportunities and outcomes for pupils in selective LEAs, (Bristol, CMPO).

Ball, S. J. & Gewirtz, S. (1997) Girls in the Education Market: choice, competition and complexity, *Gender and Education*, 9(2), 207-222.

Ball, S. J. & Vincent, C. (2007) Education, class fractions and the local rules of spatial relations, *Urban studies*, 44(7), 1175-1189.

- Bandura, A. (1962) Punishment Revisited, *Journal of Consulting Psychology*, 26, 298-301.
- Bartley, M., Power, C., Blane, D., Smith, G. D. & Shipley, M. (1994) Birth weight and later socioeconomic disadvantage: evidence from the 1958 British cohort study, *BMJ: British Medical Journal*, 309(6967), 1475.
- Belsky, J., Barnes, J. & Melhuish, E. (2007) *The national evaluation of Sure Start: Does area based intervention work?* (Bristol, The Policy Press).
- Bernstein, B. (1970) Education cannot compensate for society, *New Society*, 26, 344-347.
- Betts, J. R. & Shkolnic, J. L. (1999) The Behavioural Effects of Variations in Class Size: The Case of Math Teachers, *Educational Evaluation and Policy Analysis*, 21(2), 193-214.
- Blackmore, J., Kenway, J., Rennie, L. & Willis, S. (2004) *Answering back: Girls, boys and feminism in schools* (Routledge).
- Blatchford, P. (2003) *The Class Size Debate: Is Small Better?* (Maidenhead, Open University Press).
- Blatchford, P., Bassett, P. & Brown, P. (2008) Do low attaining and younger students benefit most from small classes? Results from a systematic observation study of class size effects on pupil classroom engagement and teacher pupil interaction., *American Educational Research Association Annual Meeting* (New York, NY).
- Blatchford, P., Bassett, P., Brown, P., Koutsoubou, M., Martin, M., Russell, A., Webster, R. & Rubie-Davies, C. (2009a) The impact of support staff in schools. Results from the Deployment and Impact of Support Staff Project (Strand 2 Wave 2). (London, Department for Children, Schools and Families).
- Blatchford, P., Bassett, P., Brown, P., Martin, C., Russell, A. & Webster, R. (2009b) *The Deployment and Impact of Support Staff project: Research brief* (London, Department for Children, Schools and Families).
- Blatchford, P., Bassett, P., Brown, P., Martin, C., Russell, A. & Webster, R. (2011) The impact of support staff on pupils' 'positive approaches to learning' and their academic progress, *British Educational Research Journal*, 37(3), 443-464.
- Blatchford, P., Bassett, P., Brown, P. & Webster, R. (2009c) The effect of support staff on pupil engagement and individual attention, *British Educational Research Journal*, 35(5), 661-686.
- Blatchford, P., Goldstein, H., Martin, C. & Browne, W. (2002) A study of class size effects in English school reception year classes., *British Educational Research Journal*, 28(2), 167-185.

Blatchford, P. & Mortimore, P. (1994) The Issue of Class Size for Young Children in Schools: What can we learn from research?, *Oxford Review of Education*, 20(4), 411-428.

Blatchford, P., Russell, A., Bassett, P., Brown, P. & Martin, C. (2007) The role and effect of teaching assistants in English primary schools (Years 4 to 6) 2000-2003. Results from the Class Size and Pupil-Adult Ratios (CSPAR) KS2 Project, *British Educational Research Journal*, 33(1), 5-26.

Boliver, V. (2013) How fair is access to more prestigious UK universities?, *British Journal of Sociology*, 64(2), 344-364.

Boliver, V. & Swift, A. (2011) Do comprehensive schools reduce social mobility, *British Journal of Sociology*, 62(1), 89-110.

Borland, M. V., Howsen, R. M. & Trawich, M. W. (2005) An investigation of the effect of class size on student academic achievement, *Education Economics*, 13(1), 73-83.

Boudon, R. (1973) *Education, opportunity, and social inequality: Changing prospects in Western society* (Wiley New York).

Bourdieu, P. (1977) Cultural Reproduction and Social Reproduction, in: J. Karabel & A. H. Halsey (Eds) *Power and Ideology in Education* (Oxford, OUP).

Boyd-Zaharius, J. (1999) Project STAR: The story of the Tennessee class-size study, *American Educator*, 23(2), 30-36.

Braun, A., Noden, P., Hind, A., McNally, S. & West, A. (2005) *Final report of the evaluation of the Pupil Learning Credits pilot scheme. DfES Research Report RR687* (London, DfES).

Breen, R. & Goldthorpe, J. H. (1997) Explaining educational differentials towards a formal rational action theory, *Rationality and society*, 9(3), 275-305.

Brooks, G. (2007) What works for children with literacy difficulties? The effectiveness of intervention schemes., (London, Department for Children, Schools and Families).

Brown, M., Askew, M., Millett, A. & Rhodes, V. (2003) The key role of educational research in the development and evaluation of the National Numeracy Strategy, *British Educational Research Journal*, 29(5), 655-667.

Brunsma, D. L. & Rockquemore, K. (1998) Examining the effects of students uniforms on attendance, substance abuse, disciplinary behavior problems, academic achievement., *Journal of Educational Research*, 92, 53-62.

Burgess, S., Greaves, E., Vignoles, A. & Wilson, D. (2009) *Parental Choice of Primary School in England: What "type" of School Do Parents Choose?* (CMPO).

Burtless, G. (1996) Does Money Matter? The effect of school resources on student achievement and adult success, (Washington, D.C., The Brookings Institution).

- Byford, M., Kuh, D. & Richards, M. (2012) Parenting practices and intergenerational associations in cognitive ability, *International Journal of Epidemiology*, 41, 263-272.
- Bynner, J., Morphy, L. & Parsons, S. (1997) Women, Employment and Skills, in: H. Metcalf (Ed) *Women and Skills* (London, Policy Studies Institute).
- Bynner, J. & Parsons, S. (2002) Social exclusion and the transition from school to work: the case of young people not in education, employment or training NEET, *Journal of Vocational Behaviour*, 60, 289-309.
- Bynner, J. & Parsons, S. (2006) *New light on literacy and numeracy* (London, NRDC Research Report).
- Cameron, J. & Pierce, W. D. (2002) *Rewards and Intrinsic Motivation: Resolving the Controversy* (Westport, CT, Bergin and Garvey).
- Carpenter, H., Papps, I., Bragg, J., Dyson, A., Harris, D., Kerr, K., Todd, L. & Laing, K. (2013) Evaluation of Pupil Premium, (London, Department for Education).
- Carter-Wall, C. & Whitfield, G. (2012) The role of aspirations, attitudes and behaviour in closing the educational attainment gap, (York, Joseph Rowntree Foundation).
- Casto, G. & Lewis, A. C. (1984) Parent involvement in infant and preschool programs, *Journal of Early Intervention*, 9(1), 49-56.
- Chowdry, H., Dearden, L. & Emmerson, C. (2008) Education maintenance allowance evaluation with administrative data: the impact of the EMA pilots on participation and attainment in post-compulsory education.
- Coe, R., Jones, K., Searle, J., Kokotsaki, D., Mohd Kosnin, A. & Skinner, P. (2008) Evidence on the effects of selective educational systems, (Durham, CEM Centre).
- Collins, C. A. & Gan, L. (2013) Does Sorting Students Improve Scores? An Analysis of Class Composition, (Cambridge, MA, National Bureau of Economic Research).
- Cooper, H., Nye, B., Charlton, K., Lindsey, J. J. & Greathouse, S. (1996) The effects of summer vacation on achievement test scores: A narrative and meta-analytic review, *Review of Educational Research*, 66(3), 227-268.
- Cooper, H., Valentine, J. C., Charlton, K. & Melson, A. (2003) The Effects of Modified School Calendars on Student Achievement and on School and Community Attitudes, *Review of Educational Research*, 73(1), 1-52.
- Cooper, K. & Stewart, K. *Does money affect children's outcomes?* (London, Joseph Rowntree Foundation).
- Cox, C. & Marks, J. (1980) *Real Concern: An Appraisal of the National Children's Bureau Report on Progress in Secondary Schools* (London, Centre for Policy Studies).

- Cribb, J., Sibieta, L. & Vignoles, A. (2013) Entry into grammar schools in England, (London, Institute for Fiscal Studies).
- Crook, C. J. (1997) *Cultural Practices and Socioeconomic Attainment: The Australian Experience* (Westport, Connecticut, Greenwood Press).
- Cullen, J. B., Jacob, B. A. & Levitt, S. (2003) The effect of school choice on student outcomes: Evidence from randomized lotteries, National Bureau of Economic Research).
- Cullis, A. (2008) Neighbourhood and well being in the earlier years, CLSIOE, University of London).
- Cummings, C., Dyson, A., Muijs, D., Papps, I., Pearson, D., Raffo, C., Tiplady, L., Todd, L. & Crowther, D. (2007) Evaluation of the Full Service Extended Schools Initiative: Final Report. DfES Research Report RR852., (London, Department for Education and Skills).
- Cummings, C., Laing, K., Law, J., McLaughlin, J., Papps, I., Todd, L. & Woolner, P. (2012) Can changing aspirations and attitudes impact on educational attainment? A review of interventions (York, Joseph Rowntree Foundation).
- Curtis, A., Exley, S., Sasia, A., Tough, S. & Geoff Whitty, G. (2008a) *The Academies Programme: Progress, problems and possibilities, A report for the Sutton Trust* (London, Sutton Trust).
- Curtis, A., Exley, S., Sasia, A., Tough, S. & Whitty, G. (2008b) *The Academies Programme: Progress, Problems and Possibilities*, (London, The Sutton Trust).
- De Graaf, N. D., De Graaf, P. M. & Kraaykamp, G. (2000) Parental Cultural Capital and Educational Attainment in the Netherlands: A Refinement of the Cultural Capital Perspective, *Sociology of Education*, 73, 92-111.
- Dearden, L., Emmerson, C., Frayne, C. & Meghir, C. (2005) Education subsidies and school drop-out rates, IFS Working Papers, Institute for Fiscal Studies (IFS)).
- Dearden, L., Emmerson, C., Frayne, C. & Meghir, C. (2009) Conditional cash transfers and school dropout rates, *Journal of Human Resources*, 44(4), 827-857.
- Dearden, L., Ferri, J. & Meghit, C. (2001) The effects of school quality on educational attainment and wages, *Review of Economics and Statistics*, 84(1), 1-20.
- Deidrich, M. (2012) *False Choices: The Economic Argument Against Market-Driven Education Reform*, (Saint Paul, MN, Minnesota 2020).
- Department for Business Innovation and Skills (2012) The 2011 Skills for Life Survey: A survey of literacy, numeracy and ICT levels in England, *BIS Research Paper*, 81.
- Department for Education (2012) *GCSE and equivalent attainment by pupil characteristics in England 2010/11*

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/219306/sfr03_2012_001.pdf.

Department for Education (2013) Three-quarter of free schools rated good or outstanding by Ofsted at first inspection, (London, Department for Education).

Desforges, C. & Abouchaar, A. (2003) The impact of parental involvement, parental support and family education on pupil achievements and adjustment: A literature review, Research report).

DfE (2013) *Statistical First Release: Permanent and fixed period exclusions from schools and exclusion appeals in England 2011/12* (London, Department for Education).

DfES (2003) Full Service Extended Schools: Requirement and Specifications, (London, Department for Education and Skills).

Dignath, C., Buettner, G. & Langfeldt, H.-P. (2008) How can primary school students learn self-regulated learning strategies most effectively?: A meta-analysis on self-regulation training programmes, *Educational Research Review*, 3(2), 101-129.

Dolton, P. & Vignoles, A. (2000) The effects of school quality on pupil outcomes: An overview, in: H. Heijke (Ed) *Education, Training and Employment in the Knowledge-Based Economy* (Basingstoke, Macmillan), 36-52.

Douglas, J. W. B. (1964a) *The Home and the School* (London, MacGibbon and Kee).

Douglas, J. W. B. (1964b) *The Home and the School: A study of ability and attainment in the primary school* (London, MacGibbon and Kee).

Downey, D. B., Von Hippel, P. T. & Broh, B. A. (2004) Are schools the great equalizer? Cognitive inequality during the summer months and the school year, *American Sociological Review*, 69(5), 613-635.

Duncan, G. J. & Brooks-Gunn, J. (Eds) (1997) *Consequences of Growing Up Poor* (New York, Russell Sage).

Dunne, M., Humphreys, S., Sebba, J., Dyson, A., Gallannaugh, F. & Muijs, D. (2007) Effective teaching and learning for pupils in low attaining groups.

Earl, L., Watson, N., Levin, B., Leithwood, K., Fullan, M. & Torrance, N. (2003) *Final report of the external evaluation of England's national literacy and numeracy strategies* (Ontario Institute for Studies in Education, University of Toronto).

Earle, L., Watson, N., Levin, B., Leithwood, K., Fullan, M. & Torrance, N. (2003) *Watching and Learning 3. Final Report of the External Evaluation of England's National Literacy and Numeracy Strategies*, (Ontario, Ontario Institute for Studies in Education, University of Toronto).

- Eisenberger, R., Pierce, W. D. & Cameron, J. (1999) Effects of reward on intrinsic motivation: Negative, neutral and positive, *Psychological Bulletin*, 125, 677-691.
- Emmerson, C., Frayne, C., McNally, S. & Silva, O. (2006) Aimhigher: excellence challenge: a policy evaluation using the labour force survey.
- Ermisch, J. (2008) Origins of Social Immobility and Inequality: Parenting and early child development, *National Institute Economic Review*, 205(62), 62-71.
- Evertson, C. M. & Randolph, C. H. (1989) Teaching practices and class size: A new look at an old issue, *Peabody Journal of Education*, 67(1), 85-105.
- Fan, X. & Chen, M. (2001) Parental involvement and students' academic achievement: A meta-analysis, *Educational psychology review*, 13(1), 1-22.
- Farrell, P., Alborz, A., Howes, A. & Pearson, D. (2010) The impact of teaching assistants on improving pupils' academic achievement in mainstream schools: A review of the literature, *Educational Review*, 62(4), 435-448.
- Feinstein, L. (2003) Inequality in the Early Cognitive Development of British Children in the 1970 Cohort, *Economica*, 70(1), 73-97.
- Feinstein, L. (2004) Mobility in pupils' cognitive attainment during school life, *Oxford Review of Economic Policy*, 20(2), 213-229.
- Finn, J. D. & Achilles, C. M. (1999) Tennessee's class size study: Findings, implications, misconceptions, *Educational Evaluation and Policy Analysis*, 21(2), 97-109.
- Fitzpatrick, M., Grismmer, D. & Hastedt, S. (2011) What a difference a day makes: Estimating daily learning gains during kindergarten and first grade using a natural experiment, *Economics of Education Review*, 30(2), 269-279.
- Flouri, E., Tzavidis, N. & Kallis, C. (2010) Area and family effects on the psychopathology of the Millennium Cohort Study children and their older siblings, *The journal of child psychology and psychiatry*, 51(2), 152-161.
- Fogelman, K. R. (Ed) (1983) *Growing up in Great Britain* (London, Macmillan).
- Fogelman, K. R. & Goldstein, H. (1976) Social Factors Associated with Changes in Educational Attainment between 7 and 11 Years of Age, *Educational Studies*, 2, 95-109.
- Ford, T., Goodman, R. & Meltzer, H. (2004) The relative importance of child, family, school and neighbourhood correlates of childhood psychiatric disorder, *Social Psychiatry and Psychiatric Epidemiology*, 39(6), 487-496.
- Fredrick, W. C. & Walberg, H. J. (1980) Learning as a function of time, *Journal of Educational Research*, 73, 183-194.

- Galindo-Rueda, F., Marcenaro-Gutierrez, O. & Vignoles, A. (2004) The widening socio-economic gap in UK higher education, *National Institute Economic Review*, 190, 70-82.
- Ganzach, Y. (2000) Parents' education, cognitive ability, educational expectations and educational attainment: Interactive effects., *British Journal of Educational Psychology*, 70(3), 419-441.
- Gewirtz, S., Ball, S. J. & Bowe, R. (1995) *Markets, choice, and equity in education* (Open University Press Buckingham).
- Giancreco, M. F., Edelman, S., Luiselli, T. E. & MacFarland, S. Z. C. (1997) Helping or hovering? Effects of instructional assistant proximity on students with disabilities, *Exceptional Children*, 64, 7-18.
- Gibbons, S., Machin, S. & Silva, O. (2008) Choice, competition, and pupil achievement, *Journal of the European Economic Association*, 6(4), 912-947.
- Gibbons, S., Machin, S. & Silva, O. (2012) Valuing school quality using boundary discontinuities., (London, Centre for the Economics of Education).
- Gibbons, S. & McNally, S. (2013) The effects of resources across school phases: a summary of recent evidence, *Centre for Economic Performance Discussion Paper No. 1226* (London, Centre for Economic Performance).
- Gibbons, S. & Silva, O. (2011) Faith primary schools: Better schools or better pupils?, *Journal of Labour Economics*, 29(3), 589-635.
- Gibson, A. & Asthana, S. (1998) School Performance, School Effectiveness and the 1997 White Paper, *Oxford Review of Education*, 24(2), 195-210.
- Gill, M. G., Ashton, P. & Algina, J. (2004) Authoritative schools: A test of a model to resolve the school effectiveness debate, *Contemporary Educational Psychology*, 29(4), 389-409.
- Gillborn, D. & Youdell, D. (2000) *Rationing Education: Policy, Practice, Reform and Equity* (Buckingham, Open University Press).
- Goldstein, H. & Blatchford, P. (1998) Class Size and Educational Achievement: A Review of Methodology with Particular Reference to Study Design, *British Educational Research Journal*, 24(3), 255-268.
- Goldstein, H. & Leckie, G. (2008) School league tables: what can they really tell us?, *Significance*, 5(2), 67-69.
- Goldstein, H. & Noden, P. (2003) Modelling Social Segregation, *Oxford Review of Education*, 29(2), 225-237.

- Goldstein, H. & Spiegelhalter, D. J. (1996) League tables and their limitations: statistical issues in comparisons of institutional performance, *Journal of the Royal Statistical Society. Series A (Statistics in Society)*, 385-443.
- Goodman, A. & Gregg, P. (2010) Poorer children's educational attainment: how important are attitudes and behaviour?, (York, Joseph Rowntree Foundation).
- Goodman, A., Sibieta, L. & Washbrook, E. (2009) *Inequalities in educational outcomes among children aged 3 to 16* Final report to the National Equality Panel).
- Gorard, S. (2006) Is there a school mix effect?, *Educational review*, 58(1), 87-94.
- Gorard, S. (2009) What are academies the answer to?, *Journal of Education Policy*, 24(1), 101-113.
- Gorard, S. (2010) Serious doubts about school effectiveness, *British Educational Research Journal*, 36(5), 745-766.
- Gorard, S. (2014) The link between Academies in England, pupil outcomes and local patterns of socio-economic segregation between schools, *Research Papers in Education*(ahead-of-print), 1-17.
- Gorard, S. & Fitz, J. (1998) The more things change ... The missing impact of marketisation?, *British Journal of Sociology of Education*, 19(3), 365-376.
- Gorard, S., Fitz, J. & Taylor, C. (2001a) School choice impacts: what do we know?, *Educational Researcher*, 30(7), 18-23.
- Gorard, S., Rees, G. & Salisbury, J. (2001b) Investigating the patterns of Differential Attainment of Boys and Girls at School, *British Educational Research Journal*, 27(2), 125-139.
- Gorard, S. & See, B. H. (2013) *Overcoming Disadvantage in Education* (London, Routledge).
- Gorard, S., See, B. H. & Davies, P. (2012) The impact of attitudes and aspirations on educational attainment and participation, (York, Joseph Rowntree Foundation).
- Gorard, S., See, B. H. & Siddiqui, N. (2014) Switch-On Reading: Evaluation Report and Executive Summary, (London, Education Endowment Foundation).
- Gorard, S. & Taylor, C. (2001) The composition of specialist schools in England: Track record and future prospects, *School leadership and management*, 21(4), 365-381.
- Gordon, R. J., Kane, T. J. & Staiger, D. (2006) *Identifying effective teachers using performance on the job* Brookings Institution Washington, DC).
- Graue, E., Rauscher, E. & Sherfinski, M. (2009) The Synergy of Class Size Reduction and Classroom Quality, *Elementary School Journal*, 110(2), 178-201.

Greene, J. P., Peterson, P. E. & Du, J. (1997) *Effectiveness of school choice: The Milwaukee experiment* (Program in Education Policy and Governance and Center for American Political Studies, Harvard University).

Gregg, P. & Macmillan, L. (2010) Family income, education and cognitive ability in the next generation: exploring income gradients in education and test scores for current cohorts of youth, *Longitudinal and Life Course Studies*, 1(3), 259-280.

Griggs, J., Whitworth, A., Walker, R., McLennan, D. & Noble, M. (2008) Person- or place-based policies to tackle disadvantage? Not knowing what works, (York, Joseph Rowntree Foundation).

Guardian Leader (2000) The Trouble with Boys, *Guardian*.

Guyon, N., Maurin, E. & McNally, S. (2012) The effect of tracking students by ability into different schools: A natural experiment, *The Journal of Human Resources*, 47(3), 684-721.

Hakim, C. (1996) *Key Issues in Women's Work* (London, Athlone).

Hallam, S. & Parsons, S. (2012) Prevalence of streaming in UK primary schools: Evidence from the Millennium Cohort Study, *British Educational Research Journal*.

Haller, E. P., Child, D. A. & Walberg, H. J. (1988) Can comprehension be taught? A quantitative synthesis of "metacognitive" studies, *Educational researcher*, 17(9), 5-8.

Hansen, K. & Jones, E. (2010) Education, schooling and childcare, in: K. Hansen, E. Jones, H. Joshi & D. Budge (Eds) *Millennium Cohort Study Fourth Survey: A user's guide to initial findings* (London, Centre for Longitudinal Studies).

Hanushek, E. A. (1971) Teacher characteristics and gains in student achievement: Estimation using micro data, *American Economic Review*, 60, 280-288.

Hanushek, E. A. (1986) The Economics of Schooling: Production and Efficiency in Public Schools, *Journal of Economic Literature*, 24(3), 1141-1177.

Hanushek, E. A. (1989) The Effect of Differential Expenditures on School Performance, *Educational researcher*, 18(4), 45-51.

Hanushek, E. A. (1992) The trade-off between child quantity and quality, *Journal of Political Economy*, 100(1), 84-117.

Hanushek, E. A. (1997) Effects of School Resources on Economic Performance, *Education Evaluation and Policy Analysis*, 19(2), 141-164.

Hanushek, E. A. (2002) Evidence, politics, and the class size debate, *The class size debate*, 37-65.

- Hanushek, E. A. (2008) Education Production Functions, in: S. N. Durlauf & L. E. Blume (Eds) *The New Palgrave Dictionary of Economics* (Palgrave Macmillan, Basingstoke).
- Hanushek, E. A. & Rivkin, S. G. (2006) Teacher Quality, in: E. A. Hanushek & F. Welch (Eds) *Handbook of the Economics of Education* (Oxford, Elsevier), 1052-1075.
- Hanushek, E. A. & Rivkin, S. G. (2010) Using Value-Added Measures of Teacher Quality, National Centre for Analysis of Longitudinal Data in Education Research. Brief 9.).
- Hanushek, E. A., Rivkin, S. G. & Taylor, L. L. (1996) The Identification of School Resource Effects, *Education Economics*, 4(2), 105-125.
- Harlen, W. & Malcolm, H. (1999) *Setting and Streaming: A Research Review. Revised Edition. SCRE Publication 143. Using Research Series 18.* (Edinburgh, ERIC).
- Harris, A. & Goodall, J. (2007) Engaging parents in raising attainment. Do parents know they matter? Research Report DCSF-RW004, (London, Department for Children Schools and Families).
- Harrison, C. (2000) Reading research in the United Kingdom, in: M. L. Kamil, P. B. Mosenthal, P. D. Pearson & R. Barr (Eds) *Handbook of Reading Research* (Mahwah, NJ, Lawrence Erlbaum Associates).
- Heath, A. & Jacobs, S. (1999) Comprehensive Reform in Britain, in: A. Leschinsky & K. U. Mayer (Eds) *The Comprehensive School Experiment Revisited: Evidence from Western Europe* (Frankfurt-am-Main, Peter Lang).
- Heath, A. F. (2003) Education since 1945, in: J. Hollowell (Ed) *Britain since 1945* (Oxford, Blackwell).
- Heath, A. F., Sullivan, A., Boliver, V. & Zimdars, A. (2013) Education under New Labour, 1997-2010, *Oxford Review of Economic Policy*, 29(1), 227-247.
- Hedges, L. V., Laine, R. D. & Greenwald, R. (1994) Does Money Matter? A Meta-Analysis of Studies of the Effects of Differential Inputs on Student Outcomes, *Educational researcher*, 23, 5-14.
- Higgins, S. E. (2010) The Impact of Interactive Whiteboards on Classroom Interaction and Learning in Primary Schools in the UK, in: M. Thomas & E. C. Schmid (Eds) *Interactive Whiteboards for education: Theory, Research and Practice* (Hershey, Pa, IGI Global), 86-101.
- Hobbs, G. & Vignoles, A. (2010) Is children's free school meal eligibility a good proxy for family income?, *British Educational Research Journal*, 36(4), 673-690.
- Hodgson, A. & Spours, K. (2008) *Education and Training 14-19: Curriculum, qualifications and organization* (London, Sage).

- Holmlund, H., McNally, S. & Viarengo, M. (2010) Does Money Matter for Schools?, *Economics of Education Review*, 29(6), 1154-1164.
- Holt, J. (1983) *How Children Learn* (New York, Merloyd Lawrence).
- Howard, P. (2009) *Beyond Punishment: Reframing Behaviour in Schools*, (Reading, CfBT Education Trust).
- Hoxby, C. M. (2004) *Achievement in charter schools and regular public schools in the United States: Understanding the differences* (Harvard University).
- Hutchings, M., Greenwood, C., Hollingworth, S., Mansaray, A., Rose, A., Minty, S. & Glass, K. (2012) *Evaluation of the City Challenge Programme*, (London, London Metropolitan University).
- Iannelli, C. (2013) The role of the school curriculum in social mobility, *British Journal of Sociology of Education*, 34(5-6), 907-928.
- Inner London Education Authority (1990) *Differences in examination performance*, (London, Inner London Education Authority).
- Ireson, J., Hallam, S. & Hurley, C. (2005) What are the effects of ability grouping on GCSE attainment?, *British Educational Research Journal*, 31(4), 443-458.
- Ireson, J. & Rushforth, K. (2004) Mapping the nature and extent of private tutoring at transition points in education, *BERA* (UMIST Manchester).
- Jackson, C. (1999) Underachieving boys? Some points for consideration, *Curriculum*, 20(2), 80-85.
- Jenkins, A. & Levacic, R. (2004) *Evaluating the Effectiveness of Specialist Schools*, (Centre for the Economics of Education, London School of Economics).
- Jenkins, A., Micklewright, J. & Schnepf, S. V. (2008) Social segregation in secondary schools: How does England compare with other countries?, *Oxford Review of Education*, 34(1), 21-27.
- Jerrim, J. (2011) England's "plummeting" PISA test scores between 2000 and 2009: Is the performance of our secondary school pupils really in relative decline, Department of Quantitative Social Science-Institute of Education, University of London).
- Jerrim, J. & Micklewright, J. (2012) Children's cognitive ability and the socioeconomic gradient: changes over age in nine countries, *From Parents to Children: The Intergenerational Transmission of Advantage*. Russell Sage Foundation, New York, pp. 262-284. .
- Jerrim, J., Vignoles, A., Lingam, R. & Friend, A. (2013) The socio-economic gradient in children's reading skills and the role of genetics, Department of Quantitative Social Science-Institute of Education, University of London).

- Jesson, D. (2000) Value added in specialist schools 1999, (London, Technology Colleges Trust).
- Jesson, D. (2001) Educational Outcomes and Value-added Analysis of Specialist Schools for the Year 2000, (London, Technology Colleges Trust).
- Jesson, D. (2002) Value added and the benefits of specialism, (London, Technology Colleges Trust).
- Jesson, D. (2004) Educational outcomes and value added by specialist schools, (London, Specialist Schools Trust).
- Jesson, D. & Crossley, D. (2007) Educational outcomes and value added by specialist schools: 2006 Analysis, Specialist schools and Academies Trust).
- Jesson, D. & Taylor, C. (2003) Educational outcomes and value added by specialist schools: 2002 Analysis, Specialist Schools and Academies Trust).
- Jeynes, W. H. (2005) A meta-analysis of the relation of parental involvement to urban elementary school student academic achievement, *Urban education*, 40(3), 237-269.
- Johnson, J., Foxx, R. M., Jacobson, J. W., Green, G. & Mulick, J. A. (2006) Positive Behaviour Support and Applied Behaviour Analysis, *The Behaviour Analyst*, 29(1), 51-74.
- Johnston, R. S. & Watson, J. E. (2005) *A seven year study of the effects of synthetic phonics teaching on reading and spelling attainment* Scottish Executive Education Department, Information, Analysis and Communication Division).
- Kane, T. J. & Staiger, D. O. (2002) The Promise and Pifalls of Using Imprecise School Accountability Measures, *Journal of Economic Perspectives*, 16(4), 91-114.
- Kane, T. J. & Staiger, D. O. (2008) Estimating teacher impacts on student achievement: An experimental evaluation, National Bureau of Economic Research).
- Karweit, N. (1985) Should we lengthen the school term?, *Educational researcher*, 14(6), 9-15.
- Kendall, L., O'Donnell, L., Golden, S., Ridley, K., Machin, S., Rutt, S., McNally, S., Schagen, I., Meghir, C., Stoney, S., Morris, M., West, A. & Noden, P. (2005) *Excellence in Cities: The national evaluation of a policy to raise standards in urban schools 2000-2003* (London, DfES).
- Kerckhoff, A. C., Fogelman, K. R., Crook, D. & Reeder, D. (1996) *Going Comprehensive in England and Wales: A study of Uneven Change* (London, Woburn Press).
- Kerckhoff, A. C. & Trott, J. (1983) Educational Attainment in a changing Educational System: the Case of England and Wales, in: Y. Shavit & H.-P. Blossfeld (Eds) *Changing Educational Attainment in Thirteen Countries* (Boulder, CO, Westview).

- Kiernan, K. & Mensah, F. K. (2011) Poverty, Family Resources and Children's Educational Attainment: The Mediating Role of Parenting, *British Educational Research Journal*, 37(2), 317-336.
- Konstantopoulos, S. (2009) Effects of teachers on minority and disadvantaged students' achievement in the early grades, *Elementary School Journal*, 110(1), 92-113.
- Kulik, C.-L. C. & Kulik, J. A. (1982) Effects of ability grouping on secondary school students: A meta-analysis of evaluation findings, *American educational research journal*, 19(3), 415-428.
- Kulik, C.-L. C., Kulik, J. A. & Bangert-Drowns, R. L. (1990) Effectiveness of mastery learning programs: A meta-analysis, *Review of Educational Research*, 60(2), 265-299.
- Kulik, J. (2003) Effects of Using Instructional Technology in Elementary and Secondary Schools: What Controlled Evaluation Studies Say, (Arlington, VA, SRI International).
- Kyriacou, C. (2005) The impact of daily mathematics lessons in England on pupil confidence and competence in early mathematics: a systematic review, *British Journal of Educational Studies*, 53(2), 168-186.
- Laine, R. D., Greenwald, R. & Hedges, L. V. (1996) Money Does Matter: A research synthesis of a new universe of education production function studies, in: L. O. Picus & J. L. Wattenbarger (Eds) *Where Does the Money Go? Resource allocation in elementary and secondary schools* (Thousand Oaks, CA, Corwin Press), 44-70.
- Leckie, G. (2009) The complexity of school and neighbourhood effects and movements of pupils on school differences in models of educational achievement, *Journal of the Royal Statistical Society: Series A*, 172(3), 537-554.
- Leckie, G. & Goldstein, H. (2009) The limitations of Using School League Tables to Inform School Choice, *Centre for Market and Public Organisation Working Paper Series No. 09/208*.
- Leech, D. & Campos, E. (2003) Is comprehensive education really free?: a case-study of the effects of secondary school admissions policies on house prices in one local area, *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, 166(1), 135-154.
- Levacic, R. & Jenkins, A. (2006) Evaluating the effectiveness of specialist schools in England, *School Effectiveness and School Improvement*, 17(3), 229-254.
- Levacic, R. & Marsh, A. (2007) Secondary modern schools: Are their pupils disadvantaged?, *British Educational Research Journal*, 32(2), 155-178.
- Loesch, P. C. (1995) A School Uniform Program That Works, *Principal*, 74(4), 28-30.

- Lopez, O. S. (2010) The Digital Learning Classroom: Improving English Language Learners' Academic Success in Mathematics and Reading using Interactive Whiteboard Technology, *Computers and Education*, 54(4), 901-915.
- Lupton, R. (2003) '*Neighbourhood Effects*': Can we measure them and does it matter? (LSE).
- Lupton, R. (2005) Social justice and school improvement: improving the quality of schooling in the poorest neighbourhoods, *British Educational Research Journal*, 31(5), 589-604.
- Lupton, R., Heath, N. & Salter, E. (2009) Education: New Labour's Top Priority, in: J. Hills, T. Sefton & K. Stewart (Eds) *Towards a More Equal Society: Poverty, inequality and policy since 1997* (London, Policy Press), 71-90.
- Lupton, R. & Kintrea, K. (2011) Can community-based interventions on aspirations raise young people's attainment, *Social Policy and Society*, 10(3), 321-335.
- Lupton, R., Noden, P., Brady, A. & West, A. (2013) School organisation and the educational achievement of children in poverty in England, (London, OFSTED).
- Lupton, R. & Obolenskaya, P. (2013) Labour's record on education: policy, spending and outcomes 1997-2010, *CASE Working Paper*.
- Machin, S. & McNally, S. (2004) The Literacy Hour. CEE Discussion Papers 0043, (London School of Economics, Centre for the Economics of Education).
- Machin, S. & McNally, S. (2006) Education and child poverty: A literature review, (York, Joseph Rowntree Foundation).
- Machin, S. & McNally, S. (2008) The literacy hour, *Journal of Public Economics*, 92(5-6), 1441-1462.
- Machin, S. & McNally, S. (2011) The Evaluation of English Education Policies, (London, Centre for the Economics of Education).
- Machin, S., McNally, S. & Meghir, C. (2005) Excellence in Cities: Evaluation of an Education Policy in Disadvantaged Areas, (London, Department for Education and Skills).
- Machin, S. & Veroit, J. (2011) Changing School Autonomy: Academy Schools and their Introduction to England's Education, *Centre for the Economics of Education Discussion Paper*, 123.
- Machin, S. & Vignoles, A. (2006) Education policy in the UK, *Centre for the Economics of Education*, CEE DP 57.
- Macmillan, L. (2014) Do grammar schools increase or reduce social mobility?, *Paper presented at QSS seminar, Institute of Education, London*.

Mael, F., Alonso, A., Gibson, D., Rogers, K. & Smith, M. (2005) Single-sex versus coeducational schooling: A systematic review, (Washington, D.C., US Department of Education).

Magnuson, K., Waldfogel, J. & Washbrook, E. (2012) The Development of SES Gradients in Skills during the School Years: Evidence from the U.S. and U.K., in: J. Ermisch, M. Jantti & T. Smeeding (Eds) *Inequality from Childhood to Adulthood: A Cross-National Perspective on the Transmission of Advantage* (New York, Russell Sage Foundation).

Marcotte, D. E. & Hemelt, S. W. (2008) Unscheduled school closings and student performance, *Education Finance and Policy* 3(3), 316-338.

Marks, J., Cox, C. & Pomian-Srednicki, M. (1983) *Standards in English Schools* (London, National Council for Educational Standards).

Mattingly, D. J., Prislín, R., McKenzie, T. L., Rodriguez, J. L. & Kayzar, B. (2002) Evaluating evaluations: The case of parent involvement programs, *Review of Educational Research*, 72(4), 549-576.

Maurin, E. & McNally, S. (2007) Educational effects of widening access to the academic track: A natural experiment, (London, CEE).

McDonald, L. & Fitzroy, S. (2010) Aggregate FASTUK evaluation report of 15 schools in 15 local education authorities across the UK, (London, Families and Schools Together (FAST) UK).

McMurtry, J. (1991) Education and the Market Model, *Journal of Philosophy of Education*, 25(2), 209-217.

Meghir, C. & Palme, M. (2005) Educational reform, ability, and family background, *American Economic Review*, 95, 414-423.

Menzies, L. (2013) *Educational Aspirations: How English Schools Can Work With Parents To Keep Them On Track*, (York, Joseph Rowntree Foundation).

Micklewright, J. & Schnepf, S. V. (2010) How reliable are income data collected with a single question?, *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, 173(2), 409-429.

Middleton, S., Maguire, S., Ashworth, K., Legge, K., Allen, T., Perrin, K., Battistin, E., Dearden, L., Emmerson, C., Fitzsimons, E. & Megir, C. (2004) *The evaluation of Education Maintenance Allowance Pilots: three years' evidence: a quantitative evaluation*.

Midouhas, E. (2012) *Children's well-being in rural compared with urban areas: Neighbourhood effects and their pathways of influence*, Institute of Education, University of London).

- Morris, A. (2009) Contextualising Catholic School Performance in England, *Oxford Review of Education*, 35(6), 725-741.
- Mortimore, P. & Whitty, G. (2000) *Can school improvement overcome the effects of disadvantage? Revised edition* (London, Institute of Education).
- Moser, C. A., Britain, G. & Moser, S. C. (1999) *Improving literacy and numeracy: a fresh start* (DfEE Publications Ipswich).
- Moss, G., Jewitt, C., Levañiç, R., Armstrong, V., Cardini, A. & Castle, F. (2007) *The interactive whiteboards, pedagogy and pupil performance evaluation: An evaluation of the Schools Whiteboard Expansion (SWE) project: London Challenge, DfES research report RR816* (London, DfES).
- Moyles, J. & Suschitzky, W. (1997) The employment and deployment of classroom support staff: head teachers' perspectives, *Research in Education*, 58, 21-34.
- Muijs, D., Chapman, C., Collins, A. & Armstrong, P. (2010) *The impact of Teach First teachers in schools: An evaluation funded by the maximum impact project for Teach First* (Manchester, University of Manchester).
- Muijs, D. & Reynolds, D. (2003) The effectiveness of the use of learning support assistants in improving the mathematics achievement of low achieving pupils in primary school, *Educational Research*, 45(3), 219-230.
- Muijs, D., Chapman, C., Collins, A. & Armstrong, P. (2010) Maximum Impact Evaluation. The impact of Teach First teachers in schools: An Evaluation, (London, Teach First).
- Nash, R. (2003) Is the school composition effect real?: A discussion with evidence from the UK PISA data, *School Effectiveness and School Improvement*, 14(4), 441-457.
- National Audit Office (2008) *Skills for Life: Progress in improving adult literacy and numeracy* (London, House of Commons Public Accounts Committee).
- National Audit Office (2010) *The Academies Programme*, (London, The Stationary Office).
- NFER (2014) *Catch-Up Numeracy: Evaluation Report and Executive Summary*, (London, Education Endowment Foundation).
- NUT (2013) *Free Schools. Free for All?*, (London, National Union of Teachers).
- Ofsted (2001) *Education Action Zones: Commentary on the first six zone inspections*, (London, Office for Standards in Education).
- Ofsted (2003) *The National Literacy and Numeracy Strategies and the Primary Curriculum*, (London, Ofsted).

- Ofsted (2010) London Challenge. Report Number 100192, (London, Ofsted).
- OFSTED (2013) Unseen children: access and achievement 20 years on, (London, OFSTED).
- Parsons, S. & Platt, L. (2013) *Disability among young children: Prevalence, heterogeneity and socio-economic disadvantage* (London, Centre for Longitudinal Studies).
- Patall, E. A., Cooper, H. & Allen, A. B. (2010) Extending the School Day or School Year A Systematic Review of Research (1985–2009), *Review of Educational Research*, 80(3), 401-436.
- Pellerin, L. A. (2005) Applying Baumrind's parenting typology to high schools: toward a middle-range theory of authoritative socialization, *Social Science Research*, 34(2), 283-303.
- Power, S., Edwards, T., Whitty, G. & Wigfall, V. (2003) *Education and the Middle Class* (Buckingham, Open University Press).
- Price Waterhouse Coopers (2008) Academies Evaluation Fifth Annual Report, (London, Department for Children Schools and Families).
- PricewaterhouseCoopers (2008) *Academies Evaluation Fifth Annual Report* (London, Annesley: DCSF Publications).
- Pring, R. (1972) Knowledge out of Control, *Education for Teaching*, 89, 19-28.
- Putnam, R. D. (1993) *Making Democracy Work: Civic Traditions in Modern Italy* (Princeton, Princeton University Press).
- Raffo, C., Dyson, A., Gunter, H., Hall, D., Jones, L. & Kalamouka, A. (2007) *Education and Poverty: A Critical Review of Theory, Policy and Practice*, (York, Joseph Rowntree Foundation).
- Rake, K. (Ed) (2000) *Women's Incomes over the Lifetime* (London, The Cabinet Office).
- Rasbash, J., Leckie, G., Pillinger, R. & Jenkins, J. (2010a) Children's educational progress: partitioning family, school and area effects, *Journal of the Royal Statistical Society Series A: Statistics in Society*, 173(3), 657-682.
- Rasbash, J., Leckie, G., Pillinger, R. & Jenkins, J. (2010b) Children's educational progress: partitioning family, school and area effects, *Journal of the Royal Statistical Society: Series A*, 173(4), 1-26.
- Ray, A. (2006) School Value Added Measures in England., (London, Department for Education and Skills).

- Reay, D. & Ball, S. J. (1997) Spoilt for choice': the working classes and educational markets, *Oxford Review of Education*, 23(1), 89-101.
- Reform Scotland (2014) Briefing on the cost of education, (Edinburgh, Reform Scotland).
- Reynolds, D., Sammons, P., Stoll, L., Barber, M. & Hillman, J. (1996) School effectiveness and school improvement in the United Kingdom, *School Effectiveness and School Improvement*, 7(2), 133-158.
- Rivkin, S. G., Hanushek, E. A. & Kain, J. F. (2005) Teachers, Schools and Academic Achievement, *Econometrica*, 73(2), 417-458.
- Robinson, P. & Smithers, A. (1999) Should the sexes be separated for secondary education--comparisons of single-sex and co-educational schools?, *Research Papers in Education*, 14(1), 23-49.
- Rockoff, J. E. (2004) The Impact of Individual Teachers on Student Achievement: Evidence from Panel Data, *The American Economic Review*, 94(2), 247-252.
- Rose, J. (2006) Independent Review of the Teaching of Early Reading: Final Report, (London, Department for Education and Skills).
- Rothstein, J. (2010) Teacher quality in educational production: Tracking, decay, and student achievement, *Quarterly Journal of Economics*, 125, 175-214.
- Sainsbury, M., Schagen, I., Whetton, C., Hagues, N. & Minnis, M. (1998) Evaluation of the National Literacy Project. Cohort 1, 1996-1998, (Slough, The National Foundation for Educational Research).
- Sammons, P. (1999) *School Effectiveness: Coming of Age in the 21st Century* (Abingdon, Swets and Zeitlinger).
- Sanders, W. L. & Horn, S. P. (1994) The Tennessee value-added assessment system (TVAAS): mixed-model methodology in educational assessment, *Journal of Personnel Evaluation in Education*, 8, 299-311.
- Schagen, I. & Goldstein, H. (2002) Do specialist schools add value? Some methodological problems, *Research Intelligence*, 80, 12-15.
- Schagen, I. & Schagen, S. (2005) Combining multilevel analysis with national value-added data sets: A case study to explore the effects of school diversity, *British Educational Research Journal*, 31(3), 309-328.
- Schanzenbach, D. W. (2007) What have we learned from Project STAR?, *Brookings Papers on Education Policy*, 205-208.
- Scherer, M. (1991) School Snapshot: Focus on African-American Culture, *Educational Leadership*, 49(4), 17-19.

- Schunk, D. H. (2008) Metacognition, self-regulation, and self-regulated learning: Research recommendations, *Educational psychology review*, 20(4), 463-467.
- Signorella, M., Hayes, A. & Li, Y. (2013) A Meta-Analytic Critique of Mael et al.'s (2005) Review of Single-Sex Schooling, *Sex Roles*, 69(7-8), 423-441.
- Simon, B. (1976) Contemporary Problems in Educational Theory, in: B. Simon (Ed) *Intelligence, Psychology and Education: A Marxist Critique* (London, Lawrence and Wishart), 264-281.
- Sims, D. P. (2008) Strategic responses to school accountability measures: It's all in the timing, *economics of Education Review*, 27, 58-68.
- Slavin, R. (1989) Class Size and Student Achievement: Small effects of small classes, *Educational Psychologist*, 24, 99-110.
- Smithers, A. & Robinson, P. (2006) The Paradox of Single-sex and Co-educational Schooling, *Centre for Education and Employment Research* University of Buckingham).
- Smithers, A. & Robinson, P. (2009) *Specialist Science Schools* (Buckingham, Carmichael Press).
- St Clair, R., Kintrea, K. & Houston, M. (2011) The influence of parents, places and poverty on educational attitudes and aspirations, (York, Joseph Rowntree Foundation).
- Steedman, J. (1980) *Progress in Secondary Schools* (London, National Children's Bureau).
- Steedman, J. (1983a) *Examination Results in Selective and Non-Selective Schools* (London, National Children's Bureau).
- Steedman, J. (1983b) *Examination Results in Selective and Non-selective Schools, Volume 2 - Appendices* (London, National Children's Bureau).
- Steele, F., Vignoles, A. & Jenkins, A. (2007) The effect of school resources on pupil attainment: a multilevel simultaneous equation modelling approach, *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, 170(3), 801-824.
- Stevenson, H. W. (1986) Mathematics Achievement of Chinese, Japanese and American Children, *Science*, 231(4739), 696-699.
- Strand, S. (1997) Pupil progress during Key Stage 1: a value added analysis of school effects, *British Educational Research Journal*, 23(4), 471-487.
- Strand, S. (2014 (in press)) Ethnicity, gender, social class and achievement gaps at age 16: Intersectionality and 'Getting it' for the white working class, *Research Papers in Education*.

- Strand, S. & Demie, F. (2006) Pupil mobility, attainment and progress in primary school, *British Educational Research Journal*, 32(4), 551-568.
- Sukhnandan, L., Lee, B. & Kelleher, S. (2000) An investigation into gender differences and achievement: Phase 2. School and classroom strategies, (Slough, National Foundation for Educational Research).
- Sullivan, A. (2001) Cultural Capital and Educational Attainment, *Sociology*, 35(4), 893-912.
- Sullivan, A. (2009) Academic self-concept, gender and single-sex schooling, *British Educational Research Journal*, 35(2), 259-288.
- Sullivan, A. & Brown, M. (2013) *Social inequalities in cognitive scores at age 16: The role of reading* (London, CLS Working Paper 2013/10).
- Sullivan, A., Heath, A. F. & Rotheron, C. (2011) Equalisation or inflation? Social class and gender differentials in England and Wales, *Oxford Review of Education*, 37(2), 215-240.
- Sullivan, A., Joshi, H. & Leonard, D. (2010a) Single-sex schooling and academic attainment at school and through the lifecourse, *American educational research journal*, 47(1), 6-36.
- Sullivan, A., Ketende, S. & Joshi, H. (2013) Social class and inequalities in early cognitive scores, *Sociology*, 47(6), 1187-1206.
- Sullivan, A. & Whitty, G. (2007) Social Inequalities and Education Policy in England, in: R. Teese, S. Lamb & M. Duru-Bellat (Eds) *International Studies in Educational Inequality, Theory and Policy* (Dordrecht, The Netherlands, Springer), 49-68.
- Sullivan, A., Zimdars, A. & Heath, A. F. (2010b) The social structure of the 14-16 curriculum in England, *International Studies in Sociology of Education*, 20(1), 5-21.
- Sutton Trust (2006) The social composition of top comprehensive schools: Rates of eligibility for free school meals at the 200 highest performing comprehensive schools, (London, Sutton Trust).
- Sutton Trust (2013) Selective Comprehensives: The social composition of top comprehensive school, (London, Sutton Trust).
- Swan, B. (1998) Teaching boys and girls in separate classes at Shenfield High School, Brentwood, in: K. Bleach (Ed) *Raising boys' achievement in schools* (Stoke-on-Trent, Trentham Books), 157-172.
- Swift, A. (2004) Would perfect mobility be perfect?, *European Sociological Review*, 20(1), 1-11.

- Sylva, K., Melhuish, E., Sammons, P., Siraj-Blatchford, I. & Taggart, B. (2004) *The effective provision of pre-school education (EPPE) Project: Findings from the pre-school to the end of Key Stage 1* (London, DfES).
- Tamim, R. M., Bernard, R. M., Borokhovski, E., Abrami, P. C. & Schmid, R. F. (2011) What Forty Years of Research Says About the Impact of Technology on Learning: A Second-Order Meta-Analysis and Validation Study, *Review of Educational Research*, 81(1), 4-28.
- Tegano, D. W., Moran, D. J. & Sawyers, J. K. (1991) *Creativity in Early Childhood Classrooms* (Washington DC, National Education Association).
- Torgerson, C. J., Brooks, G. & Hall, J. A. (2006) A systematic review of the research literature on the use of phonics in the teaching of reading and spelling, (London, Department for Education and Skills).
- Tunstall, R. & Lupton, R. (2003) Is Targeting Deprived Areas an Effective Means to Reach Poor People? An assessment of one rationale for area-based funding programmes., (Centre for Analysis of Social Exclusion, London School of Economics).
- Urdegar, S. M. (2009) Evaluation of the school improvement zone 2006-07, Miami-Dade County Public Schools Office of Program Evaluation).
- Vignoles, A., Levacic, R., Walker, J., Machin, S. & Reynolds, D. (2000) *The relationship between resource allocation and pupil attainment: a review* Centre for the Economics of Education, London School of Economics and Political Science).
- Warrington, M. & Younger, M. (2003) 'We decided to give it a twirl': single-sex teaching in English comprehensive schools, *Gender and Education*, 15(4), 339-350.
- Washbrook, E. (2011) Early environments and child outcomes: An analysis commission for the independent review on life chances, *Supporting Evidence Paper* (Bristol, Centre for Market and Public Organization, University of Bristol).
- Wheeler, P. (1987) The relationship between grade six test scores and the length of the school day, *Educational Research Quarterly* 11(3), 10-17.
- Whiting, B., Van Burgh, J. W. & Render, G. F. (1995) Mastery Learning in the Classroom, *American Educational Research Association* (San Francisco).
- Whitty, G. (2002) *Making sense of education policy* (London, Paul Chapman).
- Whitty, G. & Power, S. (2000) Marketization and privatization in mass education systems, *International Journal of Educational Development*, 20(2), 93-107.
- Wolf, A. (2011) *Review of Vocational Education: The Wolf report* (London, DFE-0031).

Zimmer, R. & Toma, E. (2000) Peer Effects in Private and Public Schools across Countries, *Journal of Policy Analysis and Management*, 19(1), 75 - 92.

Centre for Longitudinal Studies

Institute of Education

20 Bedford Way

London WC1H 0AL

Tel: 020 7612 6860

Fax: 020 7612 6880

Email cls@ioe.ac.uk

Web www.cls.ioe.ac.uk