The impact of early education as a strategy in countering socio-economic disadvantage

Research paper for Ofsted’s ‘Access and achievement in education 2013 review’

Professor Chris Pascal and Professor Tony Bertram

UK Research Team:
Sean Delaney, Selma Manjee, Marjory Perkins and Manja Plehn

International Research Team:
Alice Bennett, Carol Nelson, Sarina Razzak and Maureen Saunders

Centre for Research in Early Childhood (CREC)
In June 2012, Sir Michael Wilshaw, HMCI, stated his determination to address the issue of narrowing the gap of educational achievement between disadvantaged pupils and others. To support this intention, The Centre for Research in Early Childhood has been commissioned by OfSTED to conduct a review looking at the impact of Early Childhood Education (ECE) initiatives to combat social and economic disadvantage, both in the UK and internationally.

**This paper:**

- Examines the impact of national and international initiatives in ECE over the last 10 years on the attainment of socio-economic disadvantaged children and young people
- Sets out recommendations for action and further innovation
The impact of early education as a strategy in countering socio-economic disadvantage has been well documented in the research literature. However, what particular characteristics of early education have more impact and how these factors operate to influence the longer term educational achievement of the disadvantaged is not yet well understood. There are key questions which need further exploration. How far and in what ways can early education counter socio-economic disadvantage? What particular aspects of early education are critical in improving educational outcomes for the disadvantaged? How do they operate to counter socio-economic disadvantage? How might early education programmes adopt these successful strategies? What aspects of early education require more supporting evidence? This review looks particularly at the emerging evidence base in relation to these and other related questions.

This review:

- Sets out key evidence from the last 10 years on how early education counters socio-economic disadvantage by enhancing educational outcomes of under achieving groups
- Draws out the lessons for enhancing early education practice from key national projects and other initiatives, national and international
- Sets out a range of possible further actions to support sustained improvement in delivering early education in the areas of poorest performance.
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Executive Summary

It is 10 years since David Bell as HMCI released a report on Access and Achievement in Urban Education: 10 years on. In 2013, OfSTED is launching a major project which aims to prompt further action on narrowing the gap of educational achievement between disadvantaged pupils and others which they claim remains one of the defining and disturbing features of the English education system. OfSTED states that action over the last 20 years has not successfully “lifted these boats”. So far it is evident that the focus has been on school based initiatives but Sir Michael Wilshaw has acknowledged that early years needs to feature in this project more highly. To better inform this work OfSTED has commissioned this review of the impact of early education as a strategy in countering socio-economic disadvantage, which aims to:

1. Summarise and evaluate significant research in this area conducted over the last 10 years;
2. Summarise key interventions and actions over the last 10 years and evaluative evidence on what has worked;
3. Identify current issues and changes since 2000 in policy and practice in early education;
4. Highlight key findings which will inform further action.

The review evidence has revealed the growing extent of child poverty, inequality and social immobility and the widening extent and nature of early childhood inequality in the UK. However, it also points to the potential for action in the early years. Drawing on best available evidence we can identify an array of early childhood policy schemes that offer the potential to close these early gaps. Research on these initiatives pinpoints three core areas for action in the early years. These areas include:

- Maternal health, health related behaviours and child health;
- Parenting;
- Early education.

Judged by the evidence, the core characteristics and delivery features of programmes that have successfully boosted the learning and development of disadvantaged children can be grouped into four types:

1. Programmes that provide support to parents during pregnancy and early childhood;
2. Programmes that combine parent support and early education and care for children 0-2 years;
3. Early education and care programmes for children 0-2 years;
4. Early education programmes for children 3-4 years.

Our analysis of recent research and evaluative evidence provides strong and convincing evidence of the qualities and features of successful early intervention programmes, and in particular, effective early education programmes. This evidence provides useful guidance for the further development of early education programmes to enhance their capacity to boost early achievement for less advantaged children. We have divided these factors into three, interrelated aspects of early years’ policy and provision which demand continued attention:
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- Systemic factors: factors which are shaped by the wider system in which early education is placed;
- Structural factors: factors which shape the nature, scope and capacity of early education programmes;
- Process factors: factors which determine how early education is experienced by those involved.

The last 10 years have seen the creation of a significant international and national knowledge base about the factors that are associated with early disadvantage and how early education programmes might work more effectively, both systemically and structurally, to promote better quality early learning processes to close gaps in achievement, especially for the socially disadvantaged.

There is now little doubt that early education for low income and ethnic minority children can contribute importantly to combating educational disadvantages if certain criteria are met. Evaluation evidence indicates that the design of programmes and the approach to pedagogy and curriculum is crucial to success. “Low intensive, low dose, late starting, mono-systemic approaches are less effective overall. A didactic or academic approach in a negative socio-emotional climate may do more harm than good. Early starting, intensive, multi-systemic approaches that include centre-based education and the involvement of trained professionals as a core activity are superior, with impressive long term results and very favourable cost benefit ratios. It is now clear that investing in accessible, high quality, early starting and intensive care and education provisions for young children is socially and economically very profitable” (EACEA 2009 P 38)

The problem is that many targeted early education programmes do not meet the criteria of quality and efficiency and many programmes are often temporary projects and vulnerable to economic trends. They can also reinforce social and ethnic segregation in the system which transfers to primary schools, where we see a concentration of children with disadvantages in particular schools. Recent evidence shows that pre-primary schools with a more mixed income population have better results for disadvantaged children, probably because more able children support less able children in their development (Schechter & Bye, 2007 cited in EACEA 2009). The policy challenge is to rebuild the current systems so that they meet the crucial design features; provide high early quality education and care for all children; are integrated, attractive and affordable to all families regardless of social class or minority status; yet, are sensitive to differing educational needs, working in a child and family centred way and able to compensate for early educational disadvantages. There are key areas of early education policy and practice which the evidence shows would benefit from further attention and development: systemic, structural and process elements all need attention but the evidence is convincing that this attention will bring significant dividends for the less advantaged in our society.
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Introduction

It is 10 years since David Bell as HMCI released a report on Access and Achievement in Urban Education: 10 years on. In June this year in a major speech at the National College, the new HMCI, Sir Michael Wilshaw, stated his determination to return to these themes 10 further years on (20 years since 1993). To do so OfSTED is launching a major project which aims to prompt further action on narrowing the gap of educational achievement between disadvantaged pupils and others which they claim remains one of the defining and disturbing features of the English education system. OfSTED state that action over the last 20 years has not successfully “lifted these boats”. So far it is evident that the focus has been on school based initiatives but Sir Michael Wilshaw has acknowledged that early years needs to feature in this project more highly. To better inform this work OfSTED has commissioned this review of the impact of early education as a strategy in countering socio-economic disadvantage.

The aim of this review is to:

1. Summarise and evaluate significant research in this area conducted over the last 10 years;
2. Summarise key interventions and actions over the last 10 years and evaluative evidence on what has worked;
3. Identify current issues and changes since 2000 in policy and practice in early education;
4. Highlight key findings which will inform further action;

This review summarises key messages from the research and development initiatives detailed in the bibliography and the appendices. In particular however, the following core documents and texts were used to inform this report:


  http://www.suttontrust.com/research/social-mobility-summit-research-findings/.


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1. **What is the extent and nature of the challenge?**

A central aim of this review is to analyse recent evidence which might support a better understanding of the extent and nature of the gap in educational achievement for socially disadvantaged children. This understanding is essential if we are to identify how far and in what ways early education, as a policy tool, can function more effectively to counter socio-economic disadvantage. A series of national and international reports over the last five years provides a stark picture of the growing extent of poverty, inequality and social disadvantage in UK society and the impact of this on the educational attainment, life chances, health and social contribution of many of our children who are growing up in poor, socially disadvantaged families and communities. Collectively, these reports also identify some of the critical factors that contribute to the low educational attainment of these children. The evidence presented points to the definitive impact of experiences in the early years of life to long term progress, and thus to the potential and timeliness of early childhood interventions, including early education, to making a significant difference.

The following emergent themes are used to frame this section of our report:

- the growing extent of child poverty, inequality and social immobility;
- the extent and nature of early childhood inequality;
- the potential for action in the early years.

1.1 **The growing extent of child poverty, inequality and social immobility**

The latest report from UNICEF, ‘Measuring Child Poverty’ (2012), acknowledges that there is almost no internationally comparable data available on the effect of the recent economic downturn on child poverty. However, it is evident everywhere that front line services in the UK are under strain as austerity measures increase the numbers in need while depleting the services available. The UNICEF report points out that ‘worse is to come’ and young children can be particularly vulnerable in times of recession. It demonstrates that there is always a time lag between the onset of an economic crisis and the full extent of its impact. Its current analyses reveal that in the UK the economic crisis is already beginning to threaten social protection programmes. Child benefits have been frozen for three years and child tax credits and other programmes designed to protect the poorest children have been cut back or reshaped. The report states that these changes are likely to throw into reverse the progress made on child poverty in recent years. Although currently stable at about 20%, with a commitment to achieve 10% by 2020 under the Child Poverty Act (2010), the child poverty rate in the UK is predicted to begin rising again in 2013 and to reach 24% (relative) and 23% (absolute) by 2020/21. This would mean a return to the relative child poverty levels of two decades ago, coincidently projecting a return to the same economic and social conditions identified in the influential 1993 OfSTED report, *Access and Achievement in Urban Education*. UNICEF states that these forecasts are the best available independent estimate of “what might happen to poverty under current...”
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government policies.” This immediate economic and social context sets an urgent, challenging and timely agenda for this review of the power of early education to counter such disadvantage.

Even before the recession, the evidence in each of the reports we examined indicates that in the UK, especially, parents’ socio-economic status continues to be the primary predictor of which children prosper in adult life. The data reveals that the UK remains at the bottom of international league tables for social mobility, as measured by income or earnings. Latest comparisons suggest British citizens are about half as socially mobile as people in Finland or Denmark, which means they are twice as likely to stay in the same income bracket as their parents when they become adults (see Figure 1).

**FIGURE 1: Social Mobility Levels**

![Social Mobility Levels Diagram](image)

Reproduced from Sutton Report (Corak et al 2012, p.4)

UK social mobility is also significantly lower than in Canada and Australia, countries with whom we share much in common – economically, culturally and in the rich diversity of their populations. Amongst G2O richest nations, only the USA has poorer social mobility than the UK. These findings challenge one of the fundamental assumptions of a meritocratic society, that large inequalities of income are acceptable as long as everyone has equality of opportunity to progress in life through their own talents and hard work. The UK’s low social mobility levels show that this is not being realised and that those at the bottom of the income ladder in early life are far less...
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likely to earn higher incomes as adults, when compared to those in most other countries of similar wealth.

Inter-generational social mobility patterns in the UK, over time, whether classified by social class or income, reinforce the the life patterns of individuals. Wealthier parents are able to provide their children with advantages that less affluent parents cannot afford and a cycle for the poor is perpetuated and becomes chronic. The evidence shows that the role of education as a socio-economic leveller is clearly failing for the vast majority of children from less privileged backgrounds. Far from raising opportunities for all irrespective of background, our current education system seems to perpetuate inequalities.

As the Sutton Trust /Carnegie Corporation Summit Report (Waldfogel & Washbrook 2008) points out,

“It is clear that for a fortunate few, education, and particularly higher education, can be a driver of upward mobility. Yet, the few talents from humble origins that do go on to realise their potential often do so despite the system, not because of it. Not only is this unfair for individuals unlucky enough to find themselves on the bottom rungs of society: it represents a tragic waste of talent to the British economy in an increasingly global economy.”

Their figures show that stark, persistent gaps, widening from pre-birth to post-graduation, characterise the UK, with students from the highest social class groups being three times more likely to enter university as those from the lowest social groups (see Figure 2).
Even starker gaps persist in entry to the elite academic institutions in the UK: less than one in five degree entrants in leading research universities come from the four lower class groups that make up half the UK population. This report continues by arguing that this is all the more concerning as education is now, perhaps more than ever, the gateway to better life prospects; this at a time when higher order skills and knowledge are increasingly the most valued commodities in the world’s rapidly evolving labour market. The persistence of this underachievement gap has been quantified in economic costs as imposing the equivalent of a permanent national recession (McKinsey and Company, 2009) and is estimated to reduce the GDP of a country by between 9-16%. The core question of how far education, and particularly early education, can improve mobility levels is an even more pressing issue amid an economic recession that will undoubtedly affect the lives of those on low incomes.

Our analysis of the evidence indicates that even the most successful education policy interventions can only reduce and not eliminate disparities in educational outcomes across income, social class or race. The Sutton Trust /Carnegie Corporation Report suggests that the most successful interventions will improve educational outcomes by no more than a quarter of a standard deviation, enough to pass a cost benefit test but not enough to equalise educational opportunity for all children. They argue that this should not mean despair but rather that we
should recognise that schooling interventions by themselves should never be seen as a panacea for addressing deeply entrenched social class inequalities in the UK. Educationalists should be realists but not defeatists and, as we shall show, there are real differences that can be achieved with high quality early intervention strategies.

1.2 The extent and nature of early childhood inequality

Waldfogel and Washbrook (2008, 2012) trace early education inequalities for the current generation of children and identify the factors underpinning these gaps in different countries. The magnitude of early childhood inequality in the UK is well-documented; some estimates suggest that half the attainment gaps for pupils are already present at the start of primary school. Using Millenium Cohort study data, this research shows that the size of the emerging gaps in the test scores of children from different income groups reflects the spread of income in the UK. Large gaps exist in the UK for vocabulary tests between children aged 4 and 5 from families with middle incomes and those from families with lowest fifth of incomes (figure 3).

FIGURE 3: Pre-School Gaps

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The data also shows that there are gaps in what is termed ‘school readiness’ associated with race and ethnicity and place of birth. In the UK, Pakistani and Bangladeshi children lag far behind white children in school readiness and vocabulary. Black children (a category that combines Black British children, children from the Caribbean and children from Africa) also score lower than white children, particularly in vocabulary. In contrast, Indian children, while lagging in vocabulary at age 3, demonstrate a good deal of catch up by age 5 and also score comparably to white children on school readiness at age 3.

The evidence also shows immigrant-native gaps for the UK. Although immigrant children lag in vocabulary at age 3, and to a lesser extent at age 5, their school readiness at age 3 is comparable to that of native-born children. Immigrant children have if anything fewer behaviour problems than native-born children although the differences are very slight. These comparisons suggest that income related gaps are not the same as racial/ethnic or immigrant/native gaps. In general, racial/ethnic minority or immigrant groups do not lag as far behind in cognitive measures of school readiness as the bottom income quartile does. This pattern of results reinforces the importance of looking at income related gaps and strategies which might address these.

The developmental delay in boys relative to girls is also significant in school readiness and in their ability to cope with a formal curriculum. The longitudinal EPPE study (Sylva et al. 2004) suggested that in terms of their relative impact on educational achievement, poverty, gender and ethnicity could be ranked in that order, so working class boys regardless of ethnicity would likely be one of the more disadvantaged groups.

One of the key challenges for schools is that substantial gaps in school readiness for these under-achieving groups of children are embedded in the earliest years of life. The presence of such large gaps even before children start school has prompted a great deal of interest in the role that early education (preschool) and parenting policy might play in narrowing these gaps. If schools are to promote equality of educational achievement, it would clearly help if children were able to start school on a more equal footing and this means that action has to begin much earlier.

1.3 The potential for action in the early years

The interest in the early years as a focus for action in countering socio-economic disadvantage is supported by emerging research in neuroscience, developmental psychology and economics. The National Academy of Sciences Report ‘From Neurons to Neighbourhoods’ (Shonkoff and Phillips, 2000), highlighted research on early brain development, and linked this to the importance of quality experiences in the early years for child health and developmental outcomes. At the same time, Heckman and Lochner (2000) emphasised the importance of early years for human capital formation, arguing that investments made in the early years would lay a foundation for learning not only in those early years, but also in the future. Heckman has also joined with developmental psychologists in emphasising that both cognitive and non-cognitive aspects of development are
consequential for later life chances (Carneiro and Heckman, 2003). Heckman’s work has particularly shown the long term importance to attainment of secure development of:

- Motivation;
- Sociability (the ability to work with others);
- Attention;
- Self regulation;
- Self esteem;
- Time preference;
- Health and mental health.

In evaluating educational policies, Heckman argues that ‘soft skills’ involving personality traits, such as conscientiousness, openness and diligence are often neglected, even though they are valued in school and work environments, and in many other domains. This is in part because so much value is placed on standardised test scores and ‘soft’ skills are considered too difficult to quantify. Such skills can, however, predict success in life and programs that enhance soft skills have an important place in the writing of public policies (Heckman and Kautz 2012). He argues that social policy should be directed towards the ‘malleable’ early years if we want to address the gaps in attainment. Heckman’s work has also pointed to the economic return of investing in high quality early education programmes, especially for disadvantaged children and particularly when compared with investments in higher age groups (See fig 4). This belief is supported by the work of Rolnick and Grunewald (2003) whose report considered several studies of model programmes and, when considering the Perry Preschool program in the USA, found a return on investment of 16 percent, with 80 percent of the benefits going to the general public.
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FIGURE 4: Rates of Return

Reproduced from Heckman & Masterov 2007, p.89

A further impetus for early intervention, well documented in the Field and Allen Reviews (2010,2011) is the growing evidence that high quality interventions can advance child development in the early years. Random assignment studies of programmes such as Perry Preschool, Abecedarian, Infant Health and Development and Nurse-Family Partnerships, and the EPPE research in the UK, have found that high quality early years programmes do have the capacity to significantly improve child health and educational outcomes for disadvantaged children, in both cognitive and non-cognitive domains (Karoly, Kilburn and Cannon, 2005; Sylva et al, 2004, 2008). These results provide grounds for optimism that well crafted early childhood policies can and should play a key role in narrowing the gaps in school readiness, and in the longer term, countering the effects of socio-economic disadvantage.

The evidence in these reports shows convincingly that there are both short- and long-term economic benefits to taxpayers and the community if high quality early education is available to all children, starting with those who are most disadvantaged. Indeed, universally available early
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education of a high standard would benefit everyone and be the most cost-effective economic investment. In summary the evidence reveals that:

- **High-quality early childhood education helps prepare young children to succeed in school and become better citizens; they earn more, pay more taxes, and commit fewer crimes.**
- **Every £1 invested in quality early care and education saves taxpayers up to £13.00 in future costs.**
- **The early care and education industry is economically important—often much larger in terms of employees and revenues than other industries that receive considerable government attention and investment.**
- **Failing to invest sufficiently in quality early care and education shortchanges taxpayers because the return on investment is greater than many other economic development options.**
- **Access to available and affordable choices of early childhood learning programmes helps working parents fulfill their responsibilities.**
- **Quality early education is as essential for a productive 21st century workforce as roads or the internet; investing in it grows the economy.**

(Calman and Tarr-Whelan 2005, p2)

Whilst being optimistic, we should acknowledge that there are clearly some limits to what early years’ programmes in themselves can accomplish. Some aspects of the differences that emerge in the early years will be due to factors that are not readily altered by policy. A further challenge is that not all early years programmes are equally effective. High quality programmes are expensive and even the most promising model programmes might not work when delivered on a large scale. Yet analysis by economists (Barnett, 2011) and neuroscientists (Diamond, 2012) suggest that early childhood intervention has a disproportinate impact; a little of the highest quality goes a long way. A recent UK report by the Daycare Trust (2009) which looked at the costs of paying for high quality early education and care revealed that staff qualifications and wages in nursery schools and nursery classes are already almost at the level described in their high quality model, so the difference for those settings to achieve high quality would be minimal compared to those in other settings: only around 15 per cent increase in costs for nursery schools. Cost increases in nursery classes within primary schools are slightly higher, at 27 per cent. The report also indicates that nursery classes are actually the most cost-effective type of provision in the high quality model, followed by full daycare in children’s centres. This is because in nursery classes the head teacher costs and other indirect costs are spread over a much larger number of children than, for example, in nursery schools. Therefore, the high quality cost model represents only a relatively small cost increase (between 10 and 27 per cent) for maintained settings, but a very significant increase (up to 200 per cent) for PVI settings.

The Allen Report (2011) also presents some useful examples of the returns that have been reported from a selection of well-regarded studies. For example, an evaluation by the RAND Corporation of the Nurse Family Partnership (a programme targeted to support ‘at-risk’ families by supporting parental behaviour to foster emotional attunement and confident, non-violent parenting) estimated that the programme provided savings for high-risk families by the time
children were aged 15. These savings (over five times greater than the cost of the programme) came in the form of reduced welfare and criminal justice expenditures and higher tax revenues, and improved physical and mental health.

An independent review (Aos et al 2004) placed the average economic benefits of early education programmes for low-income 3- and 4-year-olds at close to two and a half times the initial investment: these benefits take the form of improved educational attainment, reduced crime and fewer instances of child abuse and neglect. Within this overall figure, there is substantial variation, and reviews of individual early education programmes have noted benefit-to-cost ratios as high as 17:1 (Lynch 2009). Some of the largest returns have been seen in improving children’s ability to communicate, something central to any child’s social development. It has been estimated that the benefits associated with the introduction of the literacy hour in the UK, even after controlling for a range of other factors, outstrip the costs by a ratio of between 27:1 and 70:1 (Allen 2011).

There are still thorny issues to be addressed, for example, whether such programmes are best delivered universally or targeted; however, the evidence for the significance of quality early childhood intervention and its cost effectiveness over nearly 40 years of research is now overwhelming. This review therefore sets out to identify what aspects of early intervention, and particularly early educational interventions, seem to be most promising in enhancing educational attainment for the less advantaged and how early education programmes might more effectively incorporate these features into practice and service delivery.
2. **How far and in what ways can early education counter socio-economic disadvantage?**

As set out previously, we have to acknowledge that any early intervention strategy can make only a limited contribution to countering deep, social and economic inequalities in society. However, this section of our report reviews current evidence which identifies the most fertile areas for action in the early years, highlighting key factors which are associated with educational underachievement during this period of life and need to be addressed if any progress is to be made in countering socio-economic disadvantage. There is a clear case made in all the recent reviews for an increase in the proportion of overall expenditure allocated to early intervention programmes, starting in pregnancy. UNICEF (2012) recommends that the minimum ‘level of public spending on early childhood education and care (for children aged 0 to 6 years) should not be less than 1 per cent of GDP’. The UK currently meets this target but is also trying to reverse its investment choices towards prevention and earlier intervention rather than remediation during the early years of a child’s life, as is evident throughout the OECD countries and beyond (Economist Intelligence Unit, 2012; Pascal and Bertram, 2012). The steady stream of reports and studies on the importance of early intervention over the last 18 months is testimony to the continued political awareness of the need to sustain investment in this area of policy. We should also note that the OECD (2009) reports that spending on young children is more likely to generate more positive changes than spending on older ones and, indeed, is likely to be fairer to more disadvantaged children. However it notes that, in the UK, for every £100 spent on early childhood (0–5 years), £135 is spent on middle childhood (6–11 years) and £148 is spent on late childhood (12–17 years).

Waldfogel and Washbrook (2008, 2012) use detailed cohort study data to explain the gaps in school readiness between children from the bottom fifth and children from the middle fifth of the income distribution in the US and the UK. They explore the relative importance of the factors that account for the poorer scores of low income children and the better scores of high income children to help identify policies that can play a role in closing gaps. They found that no one factor drives these results. Rather they highlight a host of differences - in factors such as parenting style and the home environment, maternal and child health, early childhood care and education, maternal education and other demographic factors - which together help explain why low income children come to school less ready to learn and why high income children come to school with an advantage.

So what role can early years policy play in tackling these differences in achievement? What policy levers might reduce inequality in school readiness? Drawing on best available evidence, Waldfogel and Washbrook (2008, 2012) identify an array of early childhood policy schemes that offer the potential to close these early gaps. They also argue that to play a role in closing early gaps, an intervention must 1) effectively address a factor that is consequential for early gaps, and 2) do more to improve the school readiness of disadvantaged children than more advantaged children (either by targeting or if universal, having a greater impact on outcomes for disadvantaged children).
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All of the reports we considered have consistent conclusions which pinpoint three core areas for action in the early years. These areas are discussed in more detail below and include:

- Maternal health, health related behaviours and child health;
- Parenting;
- Early education.

We have included the evidence on each of these areas in this review as it is clear that the most effective early childhood programmes in countering socio-economic disadvantage are multi-pronged and include action in more than one of these areas. Whilst the capacity of early education in countering disadvantage is the prime focus in this review, it is important that consideration should be given to its ability to work in partnership with early intervention initiatives in the other areas. The evidence also reveals that the potential impact of action in each of these areas is not equal, and that the primacy might shift as the child moves through the foundation years. For example, in the first months of life maternal and child health are pivotal, and later (from about 2 years), early education can make a more significant contribution. What is clear, however, is that parenting and the home learning environment are the prime and most powerful contributory factors throughout.

2.1 Maternal health, health related behaviours and child health

There is evidence of income related differences in maternal health and health related behaviours such as smoking, breastfeeding, pre-natal care, depression, obesity and overall health, which play a role in explaining developmental delay and underachievement in young children, particularly from pregnancy to around 2 years of age. However, these factors appear to have much less of an impact on school readiness as the child gets older (4-7% of gap in cognitive outcomes between low and middle income families). Disparities in child health are also a well documented source of disparities in school achievement but are seen to account for only about 4% of the gap in school readiness (this may be an underestimate) again suggesting that child health does not seem to be a major factor in explaining the gaps in school readiness which increase as the child matures.

2.2 Parenting

Parenting differences between high and low income families are well documented and they are associated with sizable differences in cognitive and non-cognitive development, and in long term educational achievement. This evidence is definitively reflected in the EPPE study (Sylva et al, 2004, 2010,2012), as well as in Waldfogel and Washbrook’s (2008, 2012) analysis of the factors associated with educational underachievement.
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**Parenting style:** This factor emerges in recent research as the single largest domain explaining the poorer cognitive performance of low income children relative to middle income children, accounting for 19% of the gap in mathematics, 21% of the gap in literacy and 33% of the gap in language (Waldfogel and Washbrook, 2012). A particularly important factor included in the parenting style domain is maternal sensitivity and responsiveness (sometimes called nurturance). Other factors include knowledge of infant development, discipline and rules. Developmental psychologists have long emphasised the importance of sensitive and responsive parenting for child development and this analysis shows that this one aspect of parenting style accounts for 11% of the gaps in literacy and maths between low and middle income children and 21% of gap in language skills between these two groups.

**Home Learning Environment:** Aspects of the home learning environment are the second most important set of factors, together accounting for between 16 and 21% of the gap in cognitive school readiness between low income children and their middle income peers. The EPPE research also found that for all children, the quality of the home learning environment is more important for intellectual and social development than parental occupation, education or income; as the report states, “what parents do is more important than who they are.” The Home Learning Environment includes parents’ teaching behaviours as well as their provision of learning materials and activities, including books and CDs, computer access, TV watching, library visits and classes. What particular factor matters most in this domain appears to depend on the specific outcome. For example, the research shows that computer access explains 9% of the gap in literacy and maths, but is less important for language.

### 2.3 Early education

The most recent international evidence (Corak *et al* 2012) reveals that in many countries, including the UK, children from low income families continue to be less likely to attend high quality early education and care programmes, even though we know that they benefit more than their more advantaged peers. This review estimates if that if all low income children were to be enrolled in high quality early education programmes, such reforms could close the gap in achievement by as much as 20-50%, revealing what a powerful driver early education can be in countering socio-economic disadvantage. This evidence is reinforced by EPPE study (2004, 2008, 2010, 2012) which demonstrates the positive effects of high quality preschool on children’s intellectual and social behavioural development up to end of KS1 (7 years) and beyond and also shows its particular benefit for less advantaged children. The current evidence provides an unequivocal argument for the pivotal role of early education programmes in countering educational underachievement, especially if targeted differentially towards lower socio-economic children and accessed from an earlier age.

The EPPE evidence also makes clear that both the quality of the early education experience as well as the quantity, (more months, not more hours a day), are influential in determining outcomes for children. The study also reveals that many of the UK early education programmes
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currently accessed are of variable quality, and as low income children more often attend these lower quality settings, it follows that if quality improvements were implemented in all early education programmes the reductions in the gap could be higher. In summary, the EPPE longitudinal evaluation of children’s early preschool experiences revealed:

- Preschool attendance, compared to none, enhances children’s all round development, leads to better cognitive and non-cognitive outcomes;
- Duration of attendance (in months) is important: an earlier start (under three years) is related to better intellectual development;
- Full time attendance leads to no better gains than part-time provision;
- Disadvantaged children benefit significantly from good quality preschool experiences, especially where they are with a mix of children from different social backgrounds;
- Overall, disadvantaged children tend to attend preschool for shorter periods of time than those from more advantaged groups (around 4-6 months less);
- There are significant differences between individual preschools and their impact on children: some settings are more effective than others in promoting positive child outcomes;
- Good quality can be found across all types of preschool but quality is higher overall in settings integrating care and education and in nursery schools. (Sylva et al 2004)

The next two sections explore further evidence from this important and detailed study, and also other research, which identifies those characteristics of early education programmes which are associated with enhanced educational outcomes, particularly for disadvantaged children.
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3. Which early childhood programmes are particularly effective in countering socio-economic disadvantage?

Over the last 10 years the UK has implemented a menu of different programmes and initiatives which aim to combat social inequality and educational underachievement through early intervention. The Allen Report (2011, Appendix D, p138-142) provides a useful table of such initiatives, giving programme characteristics, targeted age range, and measured examples of impact, outcomes and cost effectiveness and this is reproduced in Appendix 1. Parenting support and family health initiatives are increasingly offered in conjunction with early education programmes and viewed as a two generational approach in which professionals work with parents and children to support children’s early development and learning. Early education is offered as a key element in this package of support as an educational intervention specifically to help 3-4 year olds (and now disadvantaged 2 year olds) to gain skills for school entry (school readiness). It also is seen to provide a place where children can form wider friendships, learn to get along with other children and regulate their behaviour so as to develop appropriate socio-emotional and dispositional behaviours that will facilitate later learning.

Examination of the evaluation evidence of these programmes reveals that there are different models of content and delivery mode adopted in successful programmes. For example, parenting support and maternal health programmes can use professionally trained nurses and a uniform delivery method or use para-professionals and other lay staff to deliver a mix of services tailored to a specific community. Early education can be public or private, centre or school based, targeted or universal at different ages. Also, each of the programmes can be implemented as stand alone or part of a multi-faceted programme. Variations in models include:

- Focus on different child and / or adult outcomes eg school readiness – cognitive, socio-emotional, behavioural, health, economic success, childrearing skills, pregnancy, parent education, parenting skills;
- Different target person eg child, family, parent;
- Different targeting criteria eg single parent, ethnicity, mothers age, low income, low SES, high risk children, behavioural problems, substance abuse, relationship or social problems, universal;
- Different age of focal child eg prenatal to 5, shorter or longer spans;
- Different location of services eg home, centre, school, medical setting;
- Different services offered eg educational, preschool, parenting education, family supports, health or nutrition, job related, therapeutic;
- Different intensity of intervention eg starting age to ending age, hours per week, weeks per year;
- Differential approach to individualised attention eg individuals, small or large group;
- Different programme reach eg national, citywide, single setting.

The research considered in this review identifies a number of promising programmes that have shown the potential to counter socio-economic disadvantage by improving maternal and child
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health, parenting and early educational attainment, or all of these. Judged by the evidence, the core characteristics and delivery features programmes that have successfully boosted the learning and development of disadvantaged children are set out below, grouped into four types of programme:

1. Programmes that provide support to parents during pregnancy and early childhood;
2. Programmes that combine parent support and early education and care for children 0-2 years;
3. Early education and care programmes for children 0-2 years;
4. Early education programmes for children 3-4 years.

A point of caution should be inserted here. While the value of evidence-based programmes is clearly promoted in recent reviews, such as the Allen Review (2011) we should note that to concentrate solely on those programmes which meet a narrow set of success criteria which focus on a set of ‘hard’ and proven outcomes may exclude some very valuable programmes with broader notions of social justice and reducing inequality which have key resonance in this review. We would recommend that alternative methods of evidencing value and impact should be considered as well as the Randomised Control Test, experimental style evaluation approach when evaluating a wider range of early childhood programmes. The following programmes have been identified within one or more of the core review documents as offering particular capacity and impact on outcomes for disadvantaged children.

3.1 Programmes that provide support to parents during pregnancy and early childhood

The Nurse-Family Partnership Programme has been shown to be successful in improving prenatal health, reducing dysfunctional care of children in early life, and improving family functioning and economic self sufficiency. This programme provides nurse home visiting to low income, first time mothers, delivering about one visit a month during pregnancy and the first two years of a child’s life. It has been shown to improve nutrition, reduce maternal smoking during pregnancy, reduce pre-term births, promote heavier birth weight and also reduce child abuse and neglect. It has also been shown to improve parenting by increasing responsive and sensitive parenting and by the quality of the child’s Home Learning Environment and parents’ literacy activities; these measures have led to small improvements in behavioural and cognitive outcomes for children, with larger effects for at risk children. It also improves family functioning, delaying subsequent births and increasing maternal employment. The success of this programme has been attributed to the fact that it has developed a highly manualised intervention and that it uses highly trained nurses to deliver it.

The Incredible Years Programme provides parent training for families with severely behaviourally disordered children. It uses video clips to teach parents how to manage difficult behaviour and has been found to improve parents’ ability to manage their children’s behaviour and to lead to improvements in children’s conduct disorder and attention.
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**The Triple P-Positive Parenting Programme** is a manualised programme, led by trained professionals and has been shown to help parents better manage children’s behaviour.

**The Play and Learning Strategies (PALS) Programme** provides in home training to parents of infants and toddlers focused on improving parent’s responsiveness and sensitivity. The Infant Programme has well defined, manualised activities offered in 10 sessions; with the Toddler Programme having 12 sessions and parents with both ages using video clips as a training tool. The evidence shows it improves parents’ responsiveness and sensitivity and their ability to support children’s learning and development. It also shows impact on children’s attention, use of language and vocabulary scores.

**The PEEP (Peers Early Education Partnership) Programme** aims to foster reading readiness by providing parents with age appropriate materials and supporting them in using the materials either through group sessions or home visits. This programme is well specified and uses well trained professionals in its implementation. Results show gains in several measures of cognitive development between age 2 and 4-5 years. This programme is experimenting with additional models of delivery to reach parents who may not participate in formal programmes eg drop in sessions in shopping centre.

**The Special Supplement Programme for Women, Infants and Children** is a health and nutrition focused programme, based in locality based centres, which provides nutritional advice and help in purchasing healthy foods to low income pregnant parent in US which shows reductions in low birth weight and improved child nutrition in disadvantaged families.

### 3.2 Programmes that combine parent support and ECEC for children 0-2 years

**Sure Start Programme, (including Children’s Centres)** combines parent support with early childcare and education. Sure Start is a community based programme, supported by a network of locality based Children’s Centres, where anyone residing in the reach area is able to receive services. The local communities have increasing latitude in what services they offer, although all offer some core services such as outreach and home visiting, as well as some childcare and early education. Some local programmes have a strong health focus, others are led by social services or education or the voluntary and community sector. Increasingly, it is a mix of these approaches which is being employed, with the sectors working together in locality partnerships. Previous evaluations have not shown consistent evidence of impact but more recent evaluations indicate this multi-professional and multi-agency programme is associated with improvements in parenting and Home Learning Environments and have shown some improvements in some aspects of child behaviour, child development and health (National Evaluation of Sure Start, 2008) This programme is now part of wider Children’s Centre initiatives in every local community and evaluative evidence of the impact of this wide ranging and complex initiative is currently
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being evaluated (Children’s Centre Evaluation 2012). Early indications have shown that the leadership of the multi-agency partnerships required for effective delivery of the range of services is critical. Key characteristics of this programme are its multi-agency emphasis, the locality and needs-led focus, the use of well qualified, multi-professional staff teams with qualified leadership and the adoption of evidence based practices.

3.3 Early education and care programmes for children 0-2 years

A programme for the expansion of high quality, part time, early education to disadvantaged 2 year olds is currently being rolled out in the UK, to allow access for 40% of the most disadvantaged children. Programmes which focus primarily on delivering early education and care to infants and toddlers have received less attention in the literature, and are less commonly found. However, the EPPE research showed clearly high quality early education for toddlers is particularly effective for raising cognitive achievement for disadvantaged children. A key aspect of this programme is that it is offered in conjunction with parenting support, and also accompanied by strategies to improve the access children from low income families and measures to improve the quality of early education experiences offered in the providing settings. This programme would appear to build on the evidence base we have but its impact on countering socio-economic disadvantage is yet to be evaluated. The programme is building on existing provision in the private, voluntary and maintained sector, using professionally trained educators working with trained family support staff, and implementing a defined EYFS curriculum, with a focus on communication and language; personal social and emotional development; and physical development. This programme is about to be evaluated on behalf of the DfE and further evidence of its impact will be available in due course.

3.4 Early education programmes for children 3-4 years

The expansion of free entitlement to part time early education programmes which deliver early education to all children from 3-5 has been in place in the UK since 2006. There is strong evidence from US Head Start evaluations and UK EPPE studies to support the expansion of high quality, part time early education programmes which have been shown to improve school readiness, cognitive development, health and behaviour improvements, and longer term improvements to school achievement and life success. The evidence on which this programme is based favours universal provision for 3-4 year olds. There is a compelling case that high quality programmes promote school readiness with larger effects for disadvantaged children. In the UK there is work underway to improve quality, availability and access to provision as quality remains very variable and low income children still appear to access it less. Also the flexibility of the offer is being worked on to support parents’ work commitments. Policy responses are setting higher quality standards, expanding wraparound care, developing new models for parents who work irregular hours and increasing childcare subsidies for lowest income families to allow the integration of early education and childcare more effectively. There are also moves to achieve a
tighter link between nursery provision and primary schools where alignment of curricula and raising the standards of teachers would reap benefits. Also, it is argued that this might free up voluntary and community services to focus on younger children. This programme is led by professionally trained educators (teachers in most cases), working with trained support staff, and implementing a defined EYFS curriculum, with a prime focus on communication and language; personal social and emotional development; and physical development.
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4. What particular aspects of early education are critical in improving educational outcomes for the disadvantaged and how do these factors operate to counter socio-economic disadvantage?

Our analysis of recent research and evaluative evidence provides strong and convincing evidence of the qualities and features of successful early intervention programmes, and in particular, effective early education programmes. This evidence provides useful guidance for the further development of early education programmes to enhance their capacity to boost early achievement for less advantaged children. We have divided these factors into three, interrelated aspects of early years’ policy and provision which demand continued attention:

- Systemic factors: factors which are shaped by the wider system in which early education is placed;
- Structural factors: factors which shape the nature, scope and capacity of early education programmes;
- Process factors: factors which determine how early education is experienced by those involved.

For each factor we provide a clear rationale drawn from the evidence to support further action to enhance the quality of early years’ provision and practice in all settings so that the current investment in early education programmes might have greater impact in countering social and educational inequality. Each set of factors generates a set of recommendations which collectively provide an agenda for further reflection and action.

4.1 Systemic Factors

**Differential funding and investment:** The evidence we have reviewed in the core documents supports the thrust of advice given in the Marmot Review ‘Fair Societies, Health Lives’ (2010), calling for a ‘second revolution in the early years’ to increase the proportion of overall expenditure allocated, starting in pregnancy. “What happens during these early years (starting in the womb) has lifelong effects on many aspects of health and well-being—from obesity, heart disease and mental health, to educational achievement and economic status....Later interventions, although important, are considerably less effective where good early foundations are lacking” (Marmot 2010 p.16)

The cost benefit analysis of investment in high quality early years programmes (Heckman et al 2006) demonstrates that the highest per child benefits stem from programmes that focus on economically disadvantaged children. Indeed, studies have shown that these children make significant gains in cognition, social-emotional development, and educational performance when they participate in high-quality early education programmes relative to children who don’t participate. The economic benefits of these gains include increased earnings of the participants.
and public savings due to reduced crime and reduced need for rehabilitation and treatment. According to Heckman et al (2006), “Cost-benefit analysis also shows that these benefits are higher than those from public investments like sports stadiums or office towers”.

A study by Lynch (2007) documents the returns on investment made by high-quality pre-kindergarten programmes for three and four-year-olds and provides an indication of the cost-benefit savings that investment in targeted and universal early education programmes can achieve. These findings are based upon an extensive review of the economic literature, and data extrapolated from various past investments in Early Years programmes in the US such as the Head Start program, the Perry Preschool Project and the Chicago Child-Parent Centers program. Lynch argues that reallocation from later to early years investment will improve the academic performance and quality of life of millions of our nation’s children, reduce crime, make the workforce of the future more productive, and strengthen our nation’s economy. He demonstrates that a US nationwide investment in universal high-quality early childhood education would cost roughly $50 billion annually, (approximately one-third of 1% of US GDP) but that benefits would be far reaching and would include increased lifetime earnings, reduced social costs from crime, and increased tax revenue. In all, Lynch estimates that the annual benefits-to-cost ratio in 2050 of universal early years services would be roughly 8-to-1. For investment targeted on the most disadvantaged children this rate of return increases to more than 12-to-1 (See Figure 5).

**FIGURE 5: Economic benefits from investment in high-quality pre-kindergarten for three- to four-year-olds**

<table>
<thead>
<tr>
<th>Program</th>
<th>Number of years before program benefits exceed annual costs</th>
<th>Government budget benefits in 2050 (billions of 2006 dollars)</th>
<th>Increased compensation in 2050 (billions of 2006 dollars)</th>
<th>Savings to individuals from reduced crime and child abuse in 2050 (billions of 2006 dollars)</th>
<th>Total budget, compensation, and crime benefits in 2050 (billions of 2006 dollars)</th>
<th>Ratio of total annual benefits to program costs in 2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>Targeted*</td>
<td>6</td>
<td>$83</td>
<td>$156</td>
<td>$77</td>
<td>$315</td>
<td>12.1</td>
</tr>
<tr>
<td>Universal</td>
<td>9</td>
<td>191</td>
<td>432</td>
<td>156</td>
<td>779</td>
<td>8.2</td>
</tr>
</tbody>
</table>

* Targeted to lower-income families

Reproduced from Lynch (2007, Table 1)
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**Multi-faceted and intergenerational action:** It is clear from the evidence that breaking cycles of disadvantage requires systemic action which brings together a range of health, education, economic and social strategies which together work to create an early intervention approach at every stage in the life cycle. This means early education sits within a wider programme of early intervention which is active from birth to adulthood, with a focus on children, parents and the wider family and community. The most effective early intervention schemes often improve more than one set of factors, with some of the most effective early education programmes working in conjunction with parenting programmes, child health and maternal health programmes.

**Continuity in Primary School:** The evidence indicates that while early years schemes show promise in narrowing early achievement gaps, these gains will be lost unless the interventions continue during the schooling years. The core challenge for schools during the still formative years for children from 5 to 11 years, is to continue the focused attention on raising attainment to the highest levels among all children from poor and prosperous backgrounds alike. Evidence presented at the House of Commons Select Committee into Sure Start Children’s Centres (2010) showed that the best and most sustained impact in countering the effects of disadvantage occurred where the development of ‘community’, ‘broad based’ or ‘full service’ primary schools were combined in one building and under one management team. On this basis the select committee supported the extension of continuing intervention strategies for disadvantaged children throughout the birth to 19 age phases and recommended that this finding should be followed through.

**Regulation and Accountability:** There is emerging evidence that reform to bring in better regulation and accountability in the early years sector can foster changes in behaviour and improve outcomes for disadvantaged children (although we must note that it can also lead to unintended consequences eg cutting corners, focusing on certain students, inflating test scores, narrowing the curriculum). The development of enhanced statutory standards, a comprehensive regulatory framework and more efficient systems to manage data, measure quality and evidence the impact of practice is associated with better quality, more effective targeting, the efficient deployment of resources at all levels and improved outcomes for the less advantaged.

**Workforce Labour Markets:** There is some evidence that manipulating the workforce mix of staff working with disadvantaged children, to give them access to more effective and highly trained practitioners, can lead to improved educational outcomes. Pay for performance, incentives to teach the disadvantaged and closer monitoring of poor performance are factors which, according to evidence presented at the recent Social Mobility Summit (Corak et al 2012), can enhance the quality of early education available in some of our most disadvantaged communities.
4.2 Structural Factors

Staff: child ratios: There is some evidence that a favourable adult: child ratio in early education programmes, particularly those working with less advantaged children, is helpful in ensuring the quality of interactions between educators and children (Howes, Philips and Whitebrook 1992). Favourable ratios are seen to help to create a climate of emotional security, allow practitioners to be responsive to the needs of children and able to support them when they have needs or are in distress. There is yet to be definitive research which indicates optimal adult: child ratios at different ages, as work so far has been unable to disentangle the effects of staff qualification, group size and ratios. While the available literature on the effects of adult: child ratios cannot offer an exact ‘best’ ratio there is a general consensus with the UNICEF report (Bennett 2008) that an acceptable model for ECEC classes for four and five year olds would be a group of 22-24 children with two adults, assuming that both have qualifications related to working with young children in an ECEC setting. It should be noted that all the reports considered in this review continue to advocate that to support a pedagogy with more intensive educative dialogues which are beneficial to underachieving children, requires smaller group sizes with more favourable staff: child ratios.

Class Size: There are clear indications that smaller class sizes are directly linked to overall effectiveness of pre-school provision; a reduction in class size enables teachers/practitioners to spend more time with individual children; tailor instruction to match children’s needs and monitor classroom behaviour more easily. Barnet et al stated in their NIEER report that “in sum, preschool research strongly indicates that smaller class sizes are associated with greater educational effectiveness and other benefits” and that “even within studies that focus only on pre-school children, the effects of class size have been found to be larger for younger children” (Barnett et al 2004). However other studies have shown that consistency of teacher quality is also an important factor: In California where the government introduced smaller class sizes but struggled to find space or qualified teachers to sustain the quality of teacher input, the same results were not found. Teacher quality and physical resources are key to the success of this strategy in combating disadvantage.

Across Europe there is considerable variation in group size regulation, ranging from 10 to 20 children for under threes and from 20-26 or even higher for the 3 to 6 year old age group (Oberhuemer et al 2010). Barnett et al (2004) quoted two separate studies with differing conclusions; one reported that only those programs with small effective class sizes (15 or fewer) produced very large educational benefits. The second suggested that the major benefits could be seen with groups below 20 pupils. These levels of variation make it difficult to arrive at an ideal class size for maximum effectiveness.

Staff training and qualification: There is strong evidence that a well trained early years’ workforce, with high levels of qualification and access to ongoing professional development, is vital to close the achievement gap between children from poorer homes and their peers. There is a consensus that working in early years should not be seen as a less well paid, lower status and less skilled job than working with older children. Research from the UK, the US, Canada and
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Australia shows that well targeted investment in training those who work with disadvantaged young children is a crucial strategy in countering educational underachievement. The education of the workforce matters because practitioners can do a lot to improve vocabulary, and enhance the cognitive and social skills of young children, particularly when they are not gaining these skills at home. The EPPE study makes a powerful case that teachers should be involved as part of a well qualified team of professionals working with young children, and particularly those who come from less advantaged homes. The evidence indicates that qualified staff provide children with more curriculum-related activities (especially in language and mathematics) and encourage children to engage in challenging play. Less qualified staff have also been shown to be better at supporting learning when they work with qualified teachers. The presence of well educated, professional staff who use extended vocabulary and replicate what well educated mothers can do has been shown to be crucially important in improving school readiness. Montie et al. (2006) suggest that teachers with more education use more words and more complex language when communicating with children. The EPPE study consistently found positive associations with levels of teacher education and higher levels of teacher education were associated with children’s reading and language progress in the first two years of schooling. These included the findings of Montie et al (2006) from the IEA Pre-primary Project in 10 countries that as the level of teacher education increased, the language performance of 7 year olds improved. In the recent EIU report ‘Starting Well’ which compared pre-school provision across 42 countries, UK was ranked third in the category ‘Quality’ for which 2 of the 8 criteria were ‘average pre-school teacher wages’ and ‘preschool teacher training’. Only Finland and Sweden fared better, with Finland being held as an example of good practice in terms of early childhood teacher quality and training A case study in the report headed ‘Lessons from Finland’s preschool’ points out that through systematic development of preschool teaching as a professional career, early childhood educators are “accorded the same respect as other professionals, such as lawyers, with comparable working conditions” (EIU 2012 P 13)

Research over the last 8 years has consistently strongly identified strong leadership as a key element of effective early childhood provision (Muijs et al, 2004; Rodd, 2005). Blatchford and Manni claim

“there is no doubt that effective leadership and appropriate training for the leadership role is an increasingly important element in providing high quality provision for the early years, especially as we move to larger and sometimes more complex, multi-professional teams of staff across the early years sector” (2006 P 27)

A more recent study by Davis (2011) provides an insight into the impact that formal instruction has upon leadership practices.

**Enhanced practitioner skill base:** The evidence indicates that the knowledge and skill base of an early years’ practitioner is central to their effectiveness as an educator. The EPPE study showed that the practitioner’s knowledge of the particular curriculum area that is being addressed is vital and argues that curriculum knowledge is just as important in the early years as it is at any later stage of education. In addition, an effective educator also needs to have knowledge about how
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young children learn. This research revealed that knowledge of child development underpins sound practice but it often weak among early years staff.

**Early years’ pedagogy:** The evidence indicates that certain pedagogical practices are more effective than others in improving attainment for less advantaged children. There has been a long debate about the extent to which preschool education should be formal or informal, often summarised by the extent to which the curriculum is ‘play’ based. The EPPE study concludes that in most effective centres ‘play’ environments were used to provide the basis of instructive learning. However, the most effective pedagogy combines both ‘teaching’ and providing freely chosen yet potentially instructive play activities. Effective pedagogy for young children is less formal than for primary school but its curricular aims can be academic as well as social and emotional (Sylva et al 2004).

**Curriculum coverage:** Recent research has indicated that there are some areas of learning and development that are particularly vital to focus on in the foundation years of life. (Pascal and Bertram 2008; Tickell Review, 2011) However, as Heckman (2011) emphasises, any early education programme seeking to reduce social inequalities between children must focus on the crucial role of skill formation, but this requires more than basic intellectual skills. He states that just as important are ‘life skills’ such as conscientiousness, perseverance, motivation, sociability, attention, self regulation and anger management, self esteem, and the ability to defer gratification. He also notes that the critical period for such skills formation is in the pre-school years. Recent research from neuroscience (Diamond, 2010) affirms this approach to the early years curriculum and has identified a range of ‘executive functions’ which are needed for a child to make progress. Three of these core functions appear to be particularly associated with long term attainment and are vital for children to develop if the gap in achievement is to be narrowed:

1. Cognitive Flexibility i.e. switching perspectives;
2. Inhibitory Control: ability to stay focused despite distraction, have selective focused attention, stay on task;
3. Working Memory: holding information in mind and mentally working with it, making sense of what unfolds over time, relating events, ideas, learning from before to now, reasoning, cause and effect, remembering multiple instructions in sequence and following step by step in correct order.

The evidence indicates that these aspects of development are more important than IQ, entry level reading, or maths (Blair and Razza, 2007; Blair and Diamond 2008). Therefore to support a child to be ‘school ready’ and able to operate as an effective learner, the early years curriculum needs to focus on both cognitive and non-cognitive aspects of early learning and, importantly, give the child a sense of their own capacity to be a successful learner. This approach is supported by Moffit et al (2010 p.2) who state that “even small improvements....shift the entire distribution of outcomes”.

**Parenting Programmes:** The evidence shows that early education programmes that encouraged high levels of active parent engagement in their children’s learning, (through regular dialogue
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Economic Disadvantage

about children’s learning at home and in the setting, were more successful in closing the attainment gap for socially disadvantaged children. The most effective settings shared child-related information between children and staff, and more particularly, children did better where the centre shared its educational aims with parents. This enabled parents to support children at home with activities or materials that complemented those experiences in the Foundation Stage. EACEA states that “the ‘winning formula’ consists in combining care and education of the young child in a formal setting with support for parents. Research still needs to identify the precise nature and characteristics of the parental support which should be provided in European countries”. (2009 p 142)
4.3 Process factors

The quality of interactions: The quality of interactions between adults and children has been shown to be a vital element in the effectiveness of an early education programme, and responsive, sensitive, nurturing relationships are more effective in supporting an open attitude, learning and exploration. The EPPE study identified effective pedagogic interactions and revealed that more ‘sustained shared thinking’ was observed in settings where children made the most progress. This occurs when two or more individuals work together in an intellectual way to solve a problem, clarify a concept, evaluate an activity, extend a narrative etc. Both child and adult must contribute to the thinking and it must develop and extend the understanding. It was more likely to occur when children were interacting 1:1 with an adult or with a single peer partner and during focussed group work. In addition to sustained shared thinking, staff engaged in open-ended questioning in the settings where children made the most progress and provided formative feedback to children during the activities. Adult ‘modelling’ skills or appropriate behaviour was often combined with sustained periods of shared thinking: open ended questioning and modelling were also associated with better cognitive achievement.

Initiation of activities: The opportunity for children to self manage, to take initiative and self direct their learning has been shown to be a vital factor in effective early education programmes. In the EPPE study, the balance between staff or child initiated activities was equal in the most effective settings. Similarly, in effective settings the extent to which staff members extended child initiated interactions was important. The study found that almost half the child initiated episodes that contained intellectual challenge included interventions from a staff member to extend the child’s thinking. Freely chosen play activities often provided the best opportunities for adults to extend the child’s thinking. It may be that extending the child initiated play, coupled with the provision of teacher initiated group work, are the most effective vehicles for learning. Children’s cognitive outcomes appear to be directly related to the quantity and quality of the teacher/adult planned and initiated focused group work. (Sylva et al 2004)

Behaviour expectations and discipline: Research has shown that the way in which behaviour is managed and discipline expectations are enforced is key to effective learning support. The most effective settings in the EPPE study adopted discipline/behaviour policies in which staff supported children in rationalising and talking through their conflicts. In settings that were less effective in this respect, EPPE showed that there was often no follow up on children’s misbehaviour and, on many occasions, children were simply distracted or told to stop what they were doing.

Diversity: The evidence from the EPPE study shows that training and developing provision for diversity and monitoring provision for diversity leads to better outcomes for less advantaged. Research showed that quality practices related to diversity were associated with as many as 5 of the 9 cognitive and behavioural attainment outcomes, more than any other one factor, including literacy. Low attainment is associated with diversity in ethnic background, language, gender, special needs and SES at all levels of education. EPPE found that most early childhood settings
provide a relatively low quality learning environment for children in terms of diversity. The quality of diversity was higher in combined centres and nursery schools. Yet, strong patterns of association were found between scores for diversity and children’s attainment in early number and non-verbal reasoning and positively linked to scores on pre-reading. Diversity quality was a very strong predictive factor in terms of children’s cognitive outcomes. It was also associated with social and behavioural outcomes such as independence, cooperation and conformity. The diversity rating included factors such as planning for individual learning needs, gender equity and awareness and race equality within the settings (Sylva et al 2008).
5. How might early education programmes better adopt these successful strategies? Recommendations for action and further innovation

“We seem to know as much in principle about how parental involvement and its impact on pupil achievement as Newton knew about the physics of motion in the seventeenth century. What we seem to lack is the ‘engineering science’ that helps us to put our knowledge into practice. By 1650 Newton knew in theory how to put a missile on the moon. It took more than 300 years to learn how to do this in practice. The scientists who did this used Newton’s physics with modern engineering knowledge. We must not wait three hundred years to promote stellar advances in pupil’s achievement. We need urgently to learn how to apply the knowledge we already have in the field.”

(Desforges and Abouchaar, 2003, cited in Field 2011)

This quote aptly captures the challenges in ensuring the growing evidence base we have about the early causes of educational under-achievement and how early education might be used more effectively to counter social-economic disadvantage. The last 10 years have seen the creation of a significant international and national knowledge base about the factors that are associated with early disadvantage and how early education programmes might work more effectively, both systemically and structurally, to promote better quality early learning processes to close gaps in achievement, especially for the socially disadvantaged. According to EACEA,

“low intensive, low dose, late starting, mono-systemic approaches are less effective overall. A didactic or academic approach in a negative socio-emotional climate may do more harm than good. Early starting, intensive, multi-systemic approaches that include centre-based education and the involvement of trained professionals as a core activity are superior, with impressive long term results and very favourable cost benefit ratios. It is now clear that investing in accessible, high quality, early starting and intensive care and education provisions for young children is socially and economically very profitable.” (2009, p38)

The problem is that many targeted early education programmes do not meet the criteria of quality and efficiency and many programmes are often temporary projects and vulnerable to economic trends. They can also reinforce social and ethnic segregation in the system which transfers to primary schools where we see a concentration of children with disadvantages in particular schools. The evidence is that mixed income populations are more effective (Schechter & Bye, 2007). As Ancheta (2012) succinctly explains

“The policy challenge is to rebuild the current systems so that they meet the crucial design features, that provide high early quality education and care for all children, that are integrated, attractive and affordable to all families regardless of social class or minority status, yet that are sensitive to differing educational needs, working in a child and family centred way and able to compensate for early educational disadvantages”.

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We have set out below three areas of early education policy and practice which the evidence shows would benefit from further development, listing fruitful actions in each area.

5.1 System Developments

- Continued and increasing investment in early childhood programmes, particularly those aiming to enhance parenting skills and provide children with early access to high quality early education;
- Maintenance of policies beyond the short term to track impact and insist on rigorous evaluation of outcomes;
- Early education programmes working in conjunction with wider early intervention programmes, especially those concerned with supporting parenting skills and maternal and child health enhancement;
- The development of ‘enhanced service’ primary schools, which work closely with Children’s Centres and other early years services on a locality basis to ensure continuity of support for the less advantaged;
- Rigorous implementation and monitoring of the new statutory framework for early years providers, including greater accountability and support to improve performance, particularly in narrowing the achievement gap for less advantaged children;
- Tighter specifications around the nature and quality of early years provision;
- Exploration of strategies to attract, recruit and positively reward high calibre, well qualified professionals to work in disadvantaged communities;
- Improvement of training for the early years workforce, including up-skilling current employees.

5.2 Structural Developments

- Favourable staff: child ratios should be encouraged, especially in early education programmes which work with disadvantaged children;
- Reductions in class/group size should be encouraged, especially in early education programmes which work with disadvantaged children;
- Development of well trained and qualified staff teams, including trained teachers, to work in early education programmes, offering them access to ongoing staff development opportunities;
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- Development of curriculum knowledge amongst staff as well as knowledge and understanding of child development;
- Improvement of the child development content of both initial and continuing professional development;
- An active, play based pedagogy which encompasses a blend of formal and informal teaching and learning experiences should be encouraged;
- A focus in the early years curriculum on both cognitive and non-cognitive aspects of early learning and, importantly, give the child a sense of their own capacity to be a successful learner;
- Prioritisation and measurement of executive functioning (PSED) and language development in early education provision;
- Encouragement of parents to support and engage more actively in their children’s learning.

5.3 Process Developments

- Adoption of more sensitive, responsive and nurturing staff: child relationships;
- Encouragement of ‘sustained shared thinking’ with the children which encourages dialogue, negotiation of meanings and co-construction of understandings;
- Work towards an equal balance of child and adult initiated activity and encourage the development of self management, self regulation and critical thinking;
- Development of better training on diversity in all early childhood settings;
- Encouragement of behaviour policies in which staff support children’s behaviour management through reasoning and talk.
6. What aspects of early education require more supporting evidence?

Research in early childhood has developed significantly over the last 10 years, with some major, longitudinal evaluations of young children’s progress through the Foundation Years revealing the impact of differential experiences on learning and development outcomes. This research is also being fed by a rapid development in practitioner research, the documentation of practice and the evidencing of outcomes within the early years sector. Knowledge creation and knowledge transfer in the early years is gaining maturity but still has some way to go.

Research into features of effective early education programmes has identified two key characteristics:

- Systemic and structural characteristics eg staff education, staff: child ratios;
- Process characteristics eg nature of care giver interaction, warmth, responsiveness, programme coverage and delivery.

Progress is evident but there are key aspects of early education policy and practice which need more detailed evidence which draws on qualitative as well as experimental and quasi experimental approaches. Areas which require further evidence are especially needed in the process areas of programme delivery and the following issues need to be explored:

- How to improve access for less advantaged;
- How the Home Learning Environment shapes and influences early development and learning and what we can learn from higher achieving but disadvantaged children, especially boys;
- How staff: child ratios, staff qualifications and outcomes for children are linked;
- How different staff qualifications impact on quality of teaching and learning;
- How robust outcomes data at a system level can be captured earlier;
- How leadership works across a locality delivery reach;
- How early intervention partnerships operate;
- How the revised EYFS has impacted on access and inclusion.

There is also a need to provide and utilise:

- Evaluations which show which early education programmes are more effective than others and what factors are critical in effective programmes (would need alternative research approaches to Randomised Control Trials (RCTs) which are expensive and difficult to do for many very worthwhile programmes, including observational studies);
- Cost benefit analysis of various initiatives.
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**Appendix 1 – Allen Report (Appendix D)**

<table>
<thead>
<tr>
<th>Programme</th>
<th>Description</th>
<th>Age of children involved</th>
<th>Measured examples of impact, outcomes and cost-effectiveness</th>
</tr>
</thead>
</table>
| **Nurse Family Partnership (NFP)** | Intensive home visiting programme administered by health professionals. It is delivered to first-time mothers. | 0–2 years | NFP has consistently delivered positive economic returns over 30 years of rigorous research. Benefit-to-cost ratios of studies examined fall in the range of around 3:1 to 5:1. Some example impacts from the US evaluation include:  
- **Age 2**: nurse-visited children seen in emergency departments 32% less often than the control group;  
- **Age 4**: this effect on emergency treatment endured (on average 1 visit per child to emergency room vs 1.5 for the control group);  
- **Age 15**: greater effects on reports of child abuse than at age 4 (0.29 verified reports vs 0.54 for the control group);  
- fewer subsequent pregnancies (1.5 vs 2.2 for the control group);  
- fewer months on welfare (average of 60 months per child vs 90 months for the control group); and  
- fewer arrests (average of 0.16 per child vs 0.9 for the control group). |
| **Triple P** | Multi-tiered parenting programme with universal to highly targeted elements. | 0–16 years | One of two parenting interventions identified by the National Institute for Health and Clinical Excellence (NICE) as cost-effective in reducing conduct disorder. The large lifetime costs associated with conduct disorder, estimated to average £75,000 in milder cases to £225,000 in extreme ones, suggest that even a low success rate would constitute good value for money.  
Measured outcomes from Triple P include:  
- significantly lower levels of conduct problems; and  
- noted clinical changes on behaviour scale (23% vs 13% of children with problems). |
| **Incredible Years** | Parenting programme for those with children at risk of conduct disorder. | 0–12 years | One of two parenting interventions identified by NICE as cost-effective in reducing conduct disorder. The large lifetime costs associated with conduct disorder, estimated to average £75,000 in milder cases to £225,000 in extreme ones, suggest that even a low success rate would constitute good value for money.  
Evaluation outcomes include:  
- significantly reduced antisocial and hyperactive behaviour in children;  
- reduction in parenting stress and improvement in parenting competences; and  
- positive effects on child behaviour and parenting. |
| **Parent–child interaction therapy** | A parent–child intervention designed to improving the quality of the parent–child relationship and change interaction patterns. | 2–7 years | A review of parent–child interaction therapy found it to have a benefit-to-cost ratio of around 3.6:1. Improvements noted include:  
- improved child behaviour;  
- reduced parental stress; and  
- reduced abuse and neglect. |
<table>
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<tr>
<td>Success for All</td>
<td>A range of programmes in the US which foster school readiness and early literacy and numeracy development.</td>
<td>3–11 years</td>
<td>An economic evaluation that found Success for All cost the same to deliver as the control group through reduced need for remedial schooling. For low-achieving students Success for All was found to be notably cheaper — $2,600 less per student — than the standard educational approach. Some example impacts include: — better attainment; — fewer special education placements; and — less frequent grade retentions.</td>
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<tr>
<td>Multi-dimensional treatment foster care (MDITFC)</td>
<td>A fostering programme in which families are recruited, trained and closely supervised to provide adolescents with treatment and intensive supervision at home, in school, and in the community.</td>
<td>3–16 years</td>
<td>A US economic appraisal of MDITFC found a benefit-to-cost ratio of around 1:1. The potential savings from rolling out eight adolescent units of MDITFC for five years have been estimated at £21,350,000 after seven years, provided assumptions on take-up and other factors are met. The latest annual report on MDITFC in England found statistically significant differences for: — offending; — self-harm; — sexual behaviour problems; — absconding; — fire setting.</td>
</tr>
<tr>
<td>Promoting Alternative Thinking Strategies (PATHS)</td>
<td>A primary school curriculum designed to develop self-control, self-esteem, emotional awareness and interpersonal problem-solving skills.</td>
<td>4–6 years</td>
<td>PATHS is a relatively low-cost programme, estimated in the US at $15–45. Evaluations of PATHS have found positive impacts in terms of: — reducing sadness and depression; — lower peer aggression and disruptive behaviour; and — improved classroom atmosphere.</td>
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<td>Reading Recovery</td>
<td>A school-based, short-term intervention designed for children who are the lowest literacy achievers after their first year of school.</td>
<td>5–6 years</td>
<td>The benefit-to-cost ratio of delivering Reading Recovery, as part of the Every Child a Reader campaign, has been estimated in the range of around 15:1 to 17:1 over the period 2006-39. This estimate is based on a range of outcomes, including special educational needs provision, crime and health costs.</td>
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<td>Life Skills Training (LST)</td>
<td>A school-based intervention aimed at developing social skills in order to prevent alcohol and substance misuse, behavioural problems and risky sexual behaviour.</td>
<td>9–15 years</td>
<td>A US economic appraisal of LST estimated the benefit-to-cost ratio at 25:1. A review of alcohol interventions by NICE noted the impact of LST on long-term drinking behaviour. Noted outcomes include reductions in the use of tobacco, drugs and alcohol.</td>
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<tr>
<td>Functional Family Therapy (FFT)</td>
<td>A structured family-based intervention that works to enhance protective factors and reduce risk factors in the family. It is aimed at young people displaying antisocial behaviour and/or offending.</td>
<td>10–17 years</td>
<td>FTT has been estimated to have a benefit-to-cost ratio of around 7:5:1 to 13:1. Clinical trials have demonstrated impacts in terms of: treating adolescents with conduct disorder; oppositional defiant disorder or disruptive behaviour disorder; treating adolescents with alcohol and other drug misuse disorders, and who are delinquent and/or violent; reducing crime; and reducing likelihood of entry into the care system.</td>
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<tr>
<td>Multisystemic therapy (MST)</td>
<td>A youth intervention that focuses on improving the family's capacity to overcome the known causes of delinquency.</td>
<td>12–17 years</td>
<td>The benefit-to-cost ratio of MST has been estimated at around 25:1. Noted outcomes from evaluations include: reductions of 25–70% in long-term rates of rearrest; reductions of 47–64% in out-of-home placements; improvements in family functioning; and decreased mental health problems for serious juvenile offenders.</td>
</tr>
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