Cognitive gaps in the early years

A summary of findings from the report 'Low income and early cognitive development in the UK' by Elizabeth Washbrook and Jane Waldfogel

The Sutton Trust, February 2010

Foreword

When the Sutton Trust was first established in 1997 the initial focus was on university access. After two decades away from the UK, I had been shocked on my return by the dramatic under-representation of state school pupils at the country's most prestigious universities. To fresh eyes, this was one of the most glaring signs of the educational inequalities that blighted the country.

However, we were also acutely aware that the main origins of this educational divide emerged far earlier in the lives of children - in the schools they attended, and in the homes where they were first brought up. Why one talented child makes it to university 18 years later while another equally able child doesn't is a complex story - about early aspirations, advice, and of course attainment.

In 2003, the Trust supported a pilot scheme called 'Room to Play' that aimed to complement the Government's Sure Start programme by targeting the 'hardest to reach' mums and dads. Run by the Peers Early Years Partnership (PEEP), Room to Play offers support in a more accessible setting for such families: the drop-in centre is in a shopping mall in one of the UK's most deprived areas. We were delighted that the evaluation of the scheme showed very positive outcomes.

As we enter the second decade of the Millennium, the findings of this report are a stark reminder of the extent of early educational gaps that remain before school has begun for children growing up today. At the same time, the research offers a very positive message: good parenting - reading with children regularly for example - can benefit children, poor or rich.

We believe there are a number of important implications for early years practice and policy. First, proven parenting schemes such as Room to Play have a central role to play. Second, the extra resources currently designated for extra hours of nursery care for 3 and 4 years universally might be better spent on support for the most disadvantaged children at age 2. Third, these extra nursery places should be complemented by automatic access to a proven parenting programme.

We are extremely grateful to Elizabeth Washbrook from the Centre for Market and Public Organization at Bristol University and Jane Waldfogel, professor of social work and public affairs at Columbia University and visiting professor at London School of Economics, for undertaking this important piece of work. We hope that it will inform the debate about future early years support - a key strand of efforts to improve social mobility through education. Least we forget, today's 3 and 4 year olds will form tomorrow's generation of university entrants.

Sir Peter Lampl
Chairman, The Sutton Trust

Key findings

Early years gaps

- Children growing up today in the UK from the poorest fifth of families are already nearly a year (11.1 months) behind those children from middle income families in vocabulary tests by age 5, when most children start school.

- The gap between the poor and middle income children is more marked than between middle and higher income children. Children from the richest fifth of families are 5.2 months ahead of those children from middle income families in vocabulary tests by age 5 - despite the fact that income gap between middle and the top earning families is 2.3 times larger than the income gap between the middle and bottom earning families.

- Parenting style (for example sensitivity of parent-child interactions and rules about bedtimes) and the home environment (factors like parental reading and trips to museums and galleries) contribute up to half of the explained cognitive gap between the lowest and middle income families.

Childhood experiences in low income households

- Just under half (45%) of children from the poorest fifth of families were read to daily at age 3, compared with 8 in 10 (78%) of children from the richest fifth of families.

- Nearly half (47%) of children from the poorest fifth of families were born to mothers aged under 25; just under two thirds (65%) do not live with both biological parents by age 5.

- Over a third (37%) of children from the poorest fifth of families were born to parents without a single A-C grade GCSE between them; only 1 in 12 of the poorest families contained a degree-educated parent compared with 4 in 5 of the richest families.

- 28% of the poorest mothers were employed when their child was aged 5, compared with 73% of the richest mothers.

- Over 8 in 10 children from both the poorest and the richest families had experienced centre-based child care, although this study does not distinguish between the amount or quality of this care.

Impacts of parenting and poverty

- Comparing children with the same family income, parental characteristics and home environments, those who were read to every day at age 3 had a vocabulary at age 5 nearly 2 months more advanced than those who were not read to every day.

- Similarly, a child taken to the library on a monthly basis from ages 3 to 5 is two and a half months ahead of an equivalent child at age 5 who did not visit the library so frequently. Regular bedtimes at 3 and 5 are associated with gains of two and a half months at age 5.

- Comparing children with the same parenting behaviours, characteristics and home environments, those from the poorest fifth of families are on average 3 months behind those from middle income families at age 5.

- Similarly, a child at age 5 with a degree-educated parent is three and a half months ahead of a similar child with no parent with a grade A-C GCSE or above. Children at age 5 whose mothers were aged 25-29 at the time of the birth had a vocabulary three and a half months more advanced than similar children of teenage mothers.

Proposals for practice and policy

- Children's centres should offer effective parenting programmes which have been evaluated and proven to work by robust research, and which engage parents/carers and empower them to be their child's first educators.

- Sure Start early learning practitioners should work in partnership with health professionals to support families, including home visits for the hardest to reach children.

- Specialised outreach projects should be established as part of the wider Sure Start children's centre provision to improve contact with vulnerable families.

- New funding the Government plans to allocate to extend free nursery education entitlement to 3 and 4 year olds should be redirected to provide 25 hours of nursery education a week to 2-4 year olds from the 15% most disadvantaged families.

- Access to these extra nursery places should be complemented by automatic access to a proven parenting programme.

Introduction and background

A number of studies, including those published by the Sutton Trust, have demonstrated the extent to which parental income during childhood predicts an individual's later success in life. This relationship is particularly strong in the UK compared with most other developed countries[1]. The importance of the pre-school years in determining later life chances has also been well documented. Analysis of national cohort surveys show how highly able children from lower social class backgrounds at age 2 are, by around the age of 7, over-taken by less able middle class peers in cognitive tests - tests that are powerful predictors of later educational outcomes[2]. Research in the US meanwhile has found that half of the attainment gap for US children is present by the start of school[3].

The emergence of such stark inequalities early in life - but also the opportunities available during the early years to narrow cognitive gaps - has prompted increasing interest in early years schemes, from child care provision to parenting programmes. Neuroscientists have argued that 'critical' periods in the development of brain function occur during early life[4]. Economists meanwhile have pointed to evidence from long term randomised control trials suggesting that early intervention programmes have beneficial effects on the outcomes of disadvantaged children that extend into adulthood[5].

Early years provision in the UK has witnessed a significant increase in funding during the last decade: by 2006, the annual budget for the Government's Sure Start programme was £1.5 billion. In total the country spent 4.3% of its Gross Domestic Product on early years education in 2006, significantly above the OECD average[6]. By 2010, there will be 3500 Sure Start children's centres across the country, providing child care and parent support, and free nursery places for all 3 and 4 year olds[7]. This has occurred alongside a drive to alleviate poverty levels of children growing up in the poorest families.

---

[1] See: www.suttontrust.com/reports/IntergenerationalMobility.pdf

[2] Inequality in the Early Cognitive Development of British Children in the 1970 Cohort, Leon Feinstein See: http://www.jstor.org/pss/3548818; see also: http://cep.lse.ac.uk/centrepiece/v08i2/feinstein.pdf

[3] Phillips, Crouse, and Ralph (1998)

[4] See for example: Shonkoff, J. and D. Phillips (eds) (2000). From Neurons to Neighborhoods: The Science of Early Childhood Development. Washington, DC: National Academy Press

[5] See for example: Heckman, J.J. and D.V. Masterov (2007). "The Productivity Argument for Investing in Young Children." NBER Working Papers 13016, National Bureau of Economic Research, Inc.

[6] The latest OECD report found that UK spending on early years was over $7,000 per child in 2006. See: http://www.oecd.org/document/24/0,3343,en_2649_39263238_43586328_1_1_1_37455,00.html#Findings

[7] For a summary of current early years policy see http://www.hmg.gov.uk/newopportunities.aspx. All 3- and 4-year-olds are now guaranteed a free, part-time (12½ hours per week, 38 weeks per year), early-education place.

Early years investment has been shown to be beneficial in a number of ways for children – improving health and behaviour for example - but in this report we are concerned specifically with the cognitive development of young children (a strong predictor of later educational attainment).

This study quantifies the early cognitive gaps that remain for children growing up in Britain today in the recent era of widespread child-care and universal nursery provision, and reveals which characteristics and behaviours underpin these educational inequalities.

The findings point to a number of possibilities for a more effective early years strategy for the future - one that would prevent greater numbers of children from disadvantaged backgrounds falling behind their more fortunate peers before school has even begun. This debate is particularly pertinent now given current constraints on government spending for the foreseeable future: it is crucial to identify the types of early years interventions and programmes that will narrow the gaps most effectively at the least cost.

An equally important strand of the study is to document the experiences of children growing up in relative poverty in the UK today - a combination of factors outside a child's control that too often limit their development and future life prospects long before school begins. At the same time this analysis indicates the type of parental activities associated with improved cognitive outcomes for all children regardless of their income level.

The findings are based on the latest national survey data for children growing up today tracked in the Millennium Cohort Survey (MCS)[8], using a nationally representative sample of 12,644 British 5 year olds in 2006 and 2007.

The research explored the relationship between children from low income homes, a child's scores on 3 cognitive tests at 5 years old[9], and a wide range of factors that are potentially consequential for children's development. The research then used the concept of a "developmental age" of children - to compare development indicated by their test scores, in relation to an average test score for children at 62 months.

Quantifying the gap

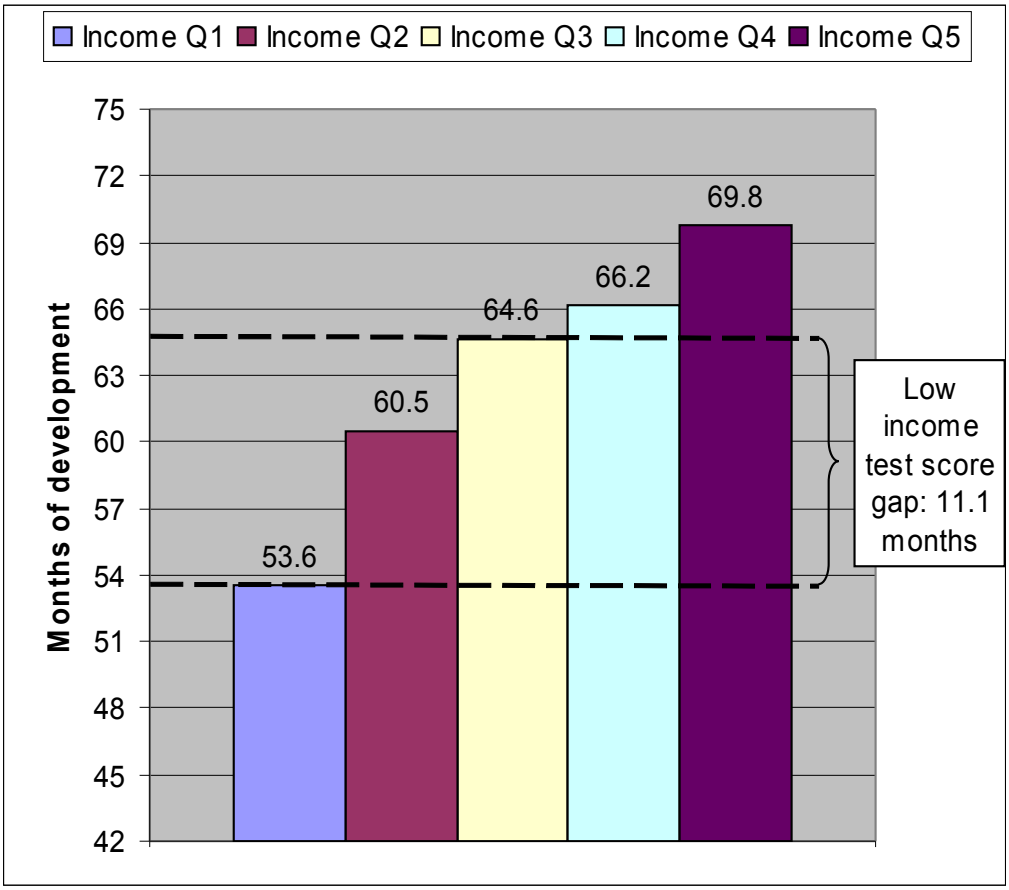
The most striking characteristic of the pre-school cognitive gap for children growing up today is the size of the gap in vocabulary test scores between children from low income households and

[8] See: http://www.cls.ioe.ac.uk/studies.asp?section=000100020001

[9] The results referred to in this summary relate to children's scores on the verbal 'naming vocabulary test' as it is on this scale that the largest income-related test score gaps are found.

middle income homes. As the figure below shows, by age 5, children from the poorest fifth of homes in the country are already on average nearly a year behind when measured by their expected years of development.

Figure 1. Mean developmental ages for 62-month old children on the BAS Naming Vocabulary test, by income quintile



Note: Quintiles are arranged in terms of mean before-tax annual income, ranging from £10,300 for quintile 1, to £20,200, £30,200, £42,900, and £79,500 for subsequent quintiles

This low income-middle income gap in development is over twice the size of the equivalent 'privilege gap' in development between children from the highest earning households and middle income homes (equal to 5.2 months of development). This is despite the fact that income gap between middle and the top earning families is 2.3 times larger than the income gap between the middle and bottom earning families.

Why might this be? The research identifies a number of factors associated with lagging development (discussed in more detail later in this summary) in children living in disadvantage. These range from experiencing less sensitive interactions with parents, to being read less to at

bedtime. Living in poverty is also associated with a range of particular attributes: teenage motherhood, single parenting, and joblessness in the household. These factors are likely to combine to create a powerful limiting force on the natural development of children - which makes it all the more startling that in some poor households good parenting can still overcome these limitations and lead to high achieving children.

On the other hand it appears that the money can only buy so much in terms of educational advantage for the most privileged children during the early years. The diminishing returns of extra education are well documented, although this result may simply reflect the lack of opportunity for extra resources to make a difference before school begins: children over a certain income threshold may experience similar child-care and parental environments, and more money does not particularly enhance that further. The relatively smaller 'privilege gap' in early development can be interpreted in a positive light: it indicates that enough resources could be targeted at the most disadvantaged children so they do not lag behind their better-off peers[10].

[10] See: http://www.suttontrust.com/reports/academic_papers_report.pdf

Explaining the gap

The researchers focus on 4 domains of 'intervening' factors that capture differences in the day-to-day lived experiences of children and that may explain the pre-school developmental gap between those from low-income backgrounds and mid-income backgrounds. These are: parenting and the home environment; material circumstances; maternal and child health; and maternal employment and child care. The groupings are explained in more detail in the table shown in the appendix on page 18. The research calculates how each of these separate factors affect cognitive gaps of children, holding every other factor constant.

Of all these, parenting style (reflected for example by the sensitivity of parent-child interactions and the enforcement of rules about bedtimes) and the home environment (including factors like parental reading and trips to museums and galleries) emerge as the most important - accounting for up to half of the cognitive differences between the lowest and middle income families that can be explained by the 4 domains in total.

A caveat to these results is that the analysis leaves over half (60%) of the cognitive gap unexplained by the selected intervening factors: many factors are not measured at all[11], while those that are measured are often done so only in an approximate manner, diluting their predictive power[12].

But importantly this central finding of the importance of parenting chimes with a previous study by the authors on US children which included more accurate measures of parenting (parents were observed by video-tape). This found that quality of parenting and the home environment was the single most important determinant of the poorer 'school readiness' of children from low-income backgrounds in the US, accounting for half of the gap in vocabulary scores between low- and middle-income children. A fifth (20%) of the overall gap was explained by differences in the 'direct' video-tape measures alone, a number that can be compared with the 4.4% of the overall gap accounted for by the much cruder parental sensitivity measure available in the British data[13].

Material deprivation (for example lack of internet access in the home and lack of access to a car) and health factors (lower rates of breast feeding, lighter birth weight and poor child health) among low income families account for 31% of the explained low- to middle-income vocabulary test score gap.

[11] The most obvious omission is any measure of the genetic endowments of children.
[12] For example, interviewer observations of the quality of parent-child interactions are available at only a single point in time, and are measured by a 12-point scale on which 58% of parents scored the maximum value.
[13] See: http://www.suttontrust.com/reports/academic_papers_report.pdf

Use of child care (alongside maternal employment) accounts for one tenth of the explained cognitive gap. Mothers of the lowest income children are far less likely to work than better off mothers and there is some evidence that maternal employment is associated with better cognitive outcomes. Exposure to preschool education, as already noted, differs little by income group. But this finding needs to be treated with some caution as this overall figure takes no account of the quality of such care, which is likely to impact significantly on the gap.

Previous research including the Government's Effective Provision of Pre-School Education (EPPE) has found that good quality pre-school experiences were associated with improved educational development, particularly for disadvantaged children. The duration of early years attendance is (in months) important with an earlier start (before 3 years) being related to better intellectual development at ages 6 and 7[14].

[14] http://www.dcsf.gov.uk/everychildmatters/research/keyresearch/earlyyearschildcare0910/eppe/eppe/

Characteristics of low income households

The study identifies separately a number of 'risk factors' or characteristics associated with the lives of children from the poorest fifth of households in the country. The descriptive statistics provide a powerful insight into the stark realities facing many children from poorer backgrounds - many of which are likely to hinder the development of children most at risk.

The first statistic of note is the extent of the differences in income between children grouped into 5 quintiles of increasing household earnings. Children from the fifth of poorest households lived in homes of average after-tax incomes of £10,000 per year or less. This compares with average after-tax incomes of just under £60,000 for the richest fifth of homes - 6 times higher than those of the poorest fifth[15].

The children from the lowest income quintile are associated with several striking demographic characteristics. Just under two thirds do not live with both biological parents by age 5, compared with just over one in ten of children in the middle income group. One in five (19%) of the poorest children were born to teenage mothers, while just under half (47%) were born to mothers under the age of 25. Young motherhood is far rarer among high (and middle) income children. While the UK is known for high teenage pregnancy rates compared with most other countries, this research demonstrates how teenage motherhood is particularly strongly associated with low income households in the UK - much more so than for the US for example[16].

Over a third of the parents of the poorest children did not attain a single grade A to C at GCSE between them. The parental education gap is stark: only 1 in 12 of the poorest children lived with a degree-educated parent at 9 months, compared with 4 in 5 of the richest children. Despite the relative youth of the poorest mothers, they are also much more likely than better off mothers to have 3 or more children.

Lack of an annual holiday emerges as one of the key distinguishing features of contemporary low-income family life – 57% of the poorest families cannot afford a holiday, compared with only 3% of the richest families. Only 28% of the poorest mothers were employed when their child was aged 5, compared with 73% of the richest mothers.

[15] All in 2005 figures. The researchers estimate that just over one quarter of children born in the Millennium Cohort (born in 2000 and 2001) lived in families with incomes below the official poverty line - defined as 60% of median after tax income (using these figures, £16,500 after tax).
[16] In their comparative study, the researchers show that while around a fifth of children in the lowest income group were born to teenage mothers in both countries, among middle-income families teenage motherhood is much rarer in the UK (2%) than in the US (12%).

There is very little difference in the proportions of children receiving child care from lowest income families and the richest families, although crucially the study does not distinguish between the amount or quality of this care.

Positive impacts of parents

At the same time, the research confirms that particular parenting activities – such as reading to a child every day and enforcing regular bedtimes – are associated with improved cognitive outcomes for children irrespective of their family background. This is a key message from the findings: children from disadvantaged backgrounds face numerous challenges, but good parenting can help to overcome at least some of the effects of social origins.

The research shows that a child who is read to every day at age 3 has a vocabulary at age 5 that is 1.92 months more advanced than a child who has exactly the same observable characteristics (including income group), but who is not read to every day at age 3. Similarly, a child taken to the library on a monthly basis from ages 3 to 5 is predicted to score 2.53 months ahead of an observationally equivalent child who did not visit the library so frequently. Regular bedtimes at 3 and 5 are associated with gains of 2.57 months.

These numbers do not necessarily imply that changes in parental behaviour would cause a boost to the vocabulary of all children by exactly these magnitudes. However, the size of the associations can be compared with the predicted effect of moving from the lowest to the middle income quintile, leaving parenting behaviours and all other intervening factors unchanged, which is equal to 3 months of development. Isolating the differences associated with a having a degree-educated parent versus no parent with a grade A-C GCSE gives a figure of 3.5 months, the same magnitude as the vocabulary differences between children of teenage mothers and similar children whose mothers were aged 25-29 at the time of the birth.

These statistics make clear the considerable disadvantages faced by low-income children in ways that cannot be quantified even by the detailed Millennium Cohort Survey (MCS) data. Yet they also show at least the potential for positive parenting behaviours to compensate in a quantitatively important way for the negative influences of poverty on cognitive development.

More affluent family circumstances are clearly associated with better parenting behaviours. At age 3, 78% of the richest children were read to daily and 91% had regular bedtimes, much higher than the corresponding numbers for the lowest income group. Nevertheless, it is still the case the 45% and 70% of the lowest income parents practiced these beneficial behaviours, providing

grounds for optimism that good parenting can be adopted and extended in even the most disadvantaged families.

Lessons for policy and practice

While these findings present a stark picture of early years educational inequality, they also point to a number of opportunities for future early years policy. The investment during the last decade in early years support both for children's centres and nursery education -- and the drive to reduce child poverty -- is to be welcomed[17].

Yet large income-related gaps in cognitive development persist for our current generation of children. While schools can do much to raise achievement among children who initially lag behind their peers, all too often pre-school gaps set in train a pattern of ever increasing inequality during the school years, and beyond. Any drive to improve social mobility must begin with an effective strategy to nurture the fledgling talent in young children so often lost before it is has had a chance to flourish.

In this report we consider how current Government policy and current early years practice might be developed in light of these findings - and other evidence relating to the pre-school development of children. The focus here is on programmes that have the potential to directly impact on the cognitive development of children in particular.

Parenting programmes

Research has long established that parenting style and the home environment are the primary drivers of child development. But the confirmation in this study of how influential these factors are for today's children, coupled with emerging knowledge that some parenting programmes have now been proven to work, suggests that real gains could be achieved.

An important insight of this work is that good parenting can triumph over many of the challenges of life in the poorest homes - as captured by the healthy cognitive development of children by the start of school. The key point here is that effective parenting schemes that have been evaluated by robust research should become an integral and widespread part of early years provision. Parenting activities are common in children's centres across the country: however, it is far from clear which particular activities are producing positive outcomes for children[18].

[17] We do not know how much wider these gaps would be today had these initiatives not been implemented.
[18] We also note that national reviews of Sure Start overall demonstrate a number of positive developmental outcomes for children, but not improved cognitive performance, although it is unclear why this might be so.

In a previous paper the authors review a series of early years programmes that have been evaluated and have been shown to narrow gaps in school readiness[19]. We believe this is a good starting point that could be developed further into a guide on the types of schemes that children's centres should consider – effectively allowing centre managers to pick from a list of approved and evaluated initiatives.

Among the schemes that have been evaluated for example is the Peers Early Years Partnership, or PEEP, based in Oxford[20]. At the heart of the programme is the idea of the parent as the 'first educator': to empower parents to support their child's early learning. But the key to the success of PEEP is the multi-faceted approach it embraces: there is a tool-kit of different ways of engaging with parents depending on the context and the developmental age. This includes one-to-one help and group sessions, centre-based activities, home visits and work at local health clinics.

Early learning practitioners

We believe one strand of parenting support important for the cognitive development of children is collaboration between health visitors and early learning practitioners. Health visitors have good access to large numbers of parents via health clinics. The potential of this access can be greatly enhanced when the health visitors work in partnership with professionals trained to support parents as first educators. An example of how this can be achieved is demonstrated through the Early Explorers pilot project which has been funded by The Sutton Trust. This fresh approach brings together PEEP practitioners and health professionals to collaborate in supporting parents/carers of families at risk of educational underachievement to enhance the quality of their children's early learning and development[21].

For the very hardest to reach, provision could also include individual home visit programmes, through which early learning practitioners undertake visits to isolated and disadvantaged families at a similar frequency to health visitors[22].

[19] See: http://www.suttontrust.com/reports/academic_papers_report.pdf. The authors consider 5 broad categories of programmes: those providing support to parents during pregnancy and early childhood; those that combine parent support and early child care and education for children age 0 to 2; early child care and education programmes for children age 0 to 2; preschool programmes for 3 and 4 year olds; and policies to raise the incomes of low-income families with young children (age 0 to 5).
[20] http://www.peep.org.uk/
[21] This approach is currently being piloted through the Early Explorers programme (operated by PEEP) which is being evaluated by Professor Jane Barlow of Warwick University.
[22] The Nurse-Family Partnership program based in the US (but now being piloted in the UK) would also fit within the individual home programme model

Room to Play

Another essential strand of parenting support is an access point which is attractive for the hardest to reach families who are reluctant to access more formal services, but can be encouraged eventually into more formal engagement.

The PEEP Room to Play drop-in centre, based in a shopping mall in one of Britain's most deprived neighbourhoods, provides such a service and has demonstrated positive outcomes in a recent evaluation[23]. We believe that this model should now be piloted elsewhere. Other innovative schemes have been developed overseas[24].

Linking parenting programmes to child care

We also believe that some useful links could be forged between parenting programmes and child care support offered by the Government - and indeed more coherence for the many strands of early years provision. Again, the focus of this report is specifically on the cognitive outcomes of young children, but more coordinated activities also promise to aid the health, development and behaviour of children more generally - arguably as important for future life prospects.

There has been growing interest in how the lessons from behavioural economics might be utilised to improve public policy. One simple but powerful idea is to offer automatic enrolment in a proven parenting programme to those who wish to take up the option of extra nursery places. How this would work in practice would need to be thought through but we believe that it is worth exploring as part of any overarching future early years strategy.

Targeting Extended Nursery places at the most disadvantaged

The findings presented here are positive in highlighting the ability of good parenting styles to promote cognitive development. However, the particularly stark cognitive deficits overall for low income children compared with their middle income counterparts (in comparison with the middle income - high income gap) suggests that the greatest gains could be achieved by targeting any extra early years support at the most disadvantaged, and hardest to reach, children.

The Government is currently proposing to expand the existing 12.5 hours of free nursery education a week for all 3 and 4 year-olds for all to a 15 hour entitlement in 2010. However, in a forthcoming report for the Sutton Trust, the Boston Consulting Group calculate that the extra

[23] http://www.suttontrust.com/reports/STEP_report.pdf
[24] See for example: http://www.lincnyc.org/index/uniqueness-of-linc

funds needed for this could instead be redirected to provide 25 hours of nursery education a week to 2-4 year-olds from the 15% most disadvantaged families.

As mentioned earlier in the report, other research has demonstrated the benefits of early nursery education on disadvantaged children in particular. We also believe that parenting programmes should as a first priority be offered to the 15% most disadvantaged families. This could be delivered through the incentives proposed above in which access to extra nursery places should would be complemented by automatic access to a proven parenting programme.

Appendix

The relative contribution of 4 domains of intervening factors to the low-to-middle income gap in vocabulary test scores

Sub-group	Example items	Contribution to test score gap
Parenting and the home environment		**48.5%**
i. Home learning environment	Child read to daily; Child taught alphabet/ numbers/songs; Child taken to library; Child taken to plays/concerts; museums/galleries; zoo; Hours of TV and computer games	
ii. Parenting style	Sensitivity of mother-child interactions; Regular bedtimes and mealtimes; Enforcement of rules; Smacking	
iii. Health-related behaviours	Breast feeding; prenatal care; smoking; alcohol	
Material circumstances		**31.0%**
i. Material possessions	Internet in home; car access; ownership of durables (e.g. washing machine, video, dishwasher); Unable to afford key items (e.g. coat and shoes for child; fruit/veg; holidays)	
ii. Neighbourhood conditions	Index of Multiple Deprivation; Rural location; Interviewer rating of local area, Mother's satisfaction with local area	
iii. Housing conditions	Social housing; Damp; Crowding; Access to garden; Home is clean/uncluttered/light/safe	
iv. Financial stress	Behind with bills; Difficult to manage financially; No regular savings	
Maternal and child health		**11.0%**
i. Child health	Birth weight; Gestation; Special Care Unit at birth; Mother's rating of general health	
ii. Maternal physical health	Self-rated general health; Longstanding limiting illness; Overweight/Obese	
iii. Maternal psychosocial wellbeing	Post-natal depression; Psychological distress; Social support; Self esteem; Locus of control; Life satisfaction	
Maternal employment and child care		**9.5%**
	Employed part-time/full-time; Childminder/ day nursery at 9 mos; Type of early education centre attended	

Percentages are shares of the low- to middle-income vocabulary test score gap explained by all the factors listed in the table in total. These factors together account for 40% of the entire 11.1 month test score gap.