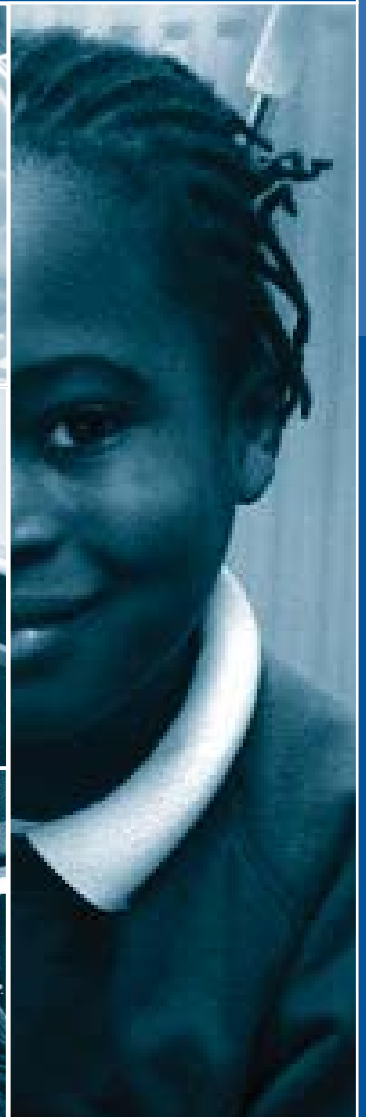


# The long term costs of literacy difficulties



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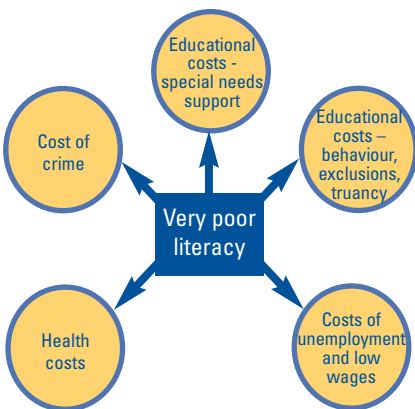
# Executive summary

This report was commissioned by the KPMG Foundation, a charitable trust that funds education and social projects for disadvantaged children and young people.

The context was the Foundation's involvement in the *Every Child A Reader* initiative, a £10M, three-year project that is providing expert literacy teaching to six-year-old children who are struggling to learn to read and write.

## The brief was to:

- review the research on the long term consequences of literacy difficulties for individuals and for society;
- estimate the costs to the public purse that result;
- estimate the return on investment of early intervention to address literacy difficulties.



The research reviewed shows that literacy difficulties are linked to costly special educational needs provision, to truancy, exclusion from school, reduced employment opportunities, increased health risks and a greatly increased risk of involvement with the criminal justice system.

These increased risks operate over and above those associated with social disadvantage in general, and those associated with lack of qualifications.

Costs have been attached to each of these risks and summed over the life course to the age of 37 (the last point at which reliable survey data is currently available). The total resulting costs to the public purse to age 37 arising from failure to learn to read in the primary school years are estimated at between £44,797 (lower bound figure) and £ 53,098 (upper bound figure) for each individual. This works out at a total of £1.73BN to £2.05 BN every year.

The cost of providing the Reading Recovery early intervention programme used in the *Every Child A Reader* initiative to tackle literacy difficulties is approximately £2,389 per pupil.

Based on evidence that Reading Recovery intervention will lift 79% of children who receive it out of literacy failure, the return on investment for every pound spent on the *Every Child A Reader* programme is estimated to be in the range £14.81 to £17.56 over the period between 2006-8 and 2037-9, when the children currently involved in the programme reach the age of 37.

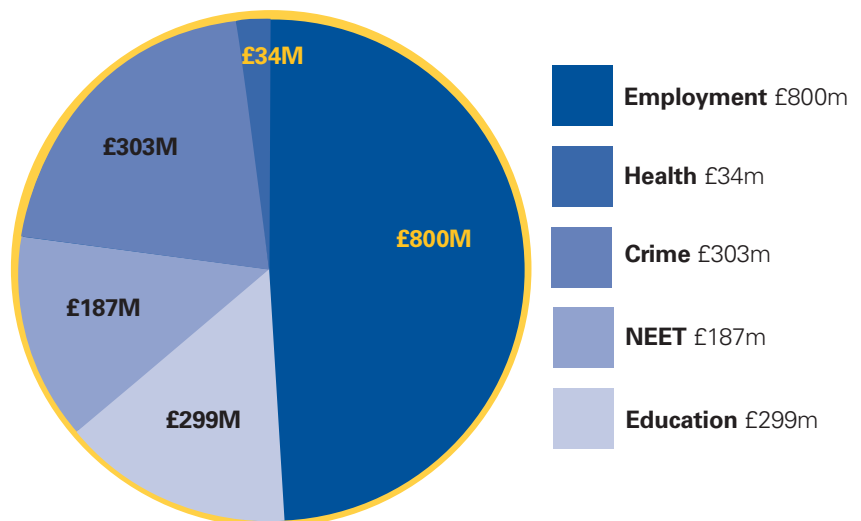
We estimate the savings that would be made to the age of 37 as a result of providing Reading Recovery intervention at the age of six to all of the 38,700 pupils per year who currently leave primary school with very low literacy skills as between £1.37 BN and £1.62 BN.

These estimates are conservative. They do not include savings that could not readily be quantified, such as the economic effects of reduced spending power, social housing costs, the costs of generally poorer health, the costs of substance abuse over the age of 18, and the costs of intergenerational effects on literacy skills.

Employment-related costs form the largest category of savings, at nearly £800M. Costs to the education system and the costs of crime provide the next largest categories.

Within education, the costs of literacy failure are greater in the secondary phase than they are in the primary phase. The costs to primary schools of providing intervention outweigh the immediate benefits. This suggests that in economic terms it may be difficult to persuade primary schools to shoulder the full costs of intervention without targeted top-up funding.

	Cost category	Total present value savings to age 37(£)
Education costs	Special needs support - literacy and behaviour (primary)	68,959,959
	Special needs support - literacy and behaviour (secondary )	122,615,417
	Cost of maintaining a Statement of special educational needs	98,153,189
	Educational psychologist time	3,759,777
	Permanent exclusions	1,572,765
	Truancy	4,368,153
	<b>Education total</b>	<b>299,429,260</b>
	Employment costs	Tax and NI revenues
Unemployment benefits		171,554,800
<b>Employment total</b>		<b>799,984,879</b>
Social costs associated with being NEET (Not in Employment, Education or Training) at age 16-18	Substance abuse and teenage pregnancy	187,409,769
	<b>Social cost total</b>	<b>187,409,769</b>
Health costs	Depression	19,662,975
	Obesity	14,163,421
	<b>Health total</b>	<b>33,826,396</b>
Costs of crime	Prison costs	302,724,165
	<b>Crime total</b>	<b>302,724,165</b>
<b>TOTAL</b>		<b>1,623,374,471</b>



# 1. Purpose and scope of this report

1.1 This report was commissioned by the KPMG Foundation, a charitable trust that funds education and social projects for disadvantaged children and young people.

1.2 The context was the KPMG Foundation's involvement in the *Every Child A Reader* initiative, a £10M, three-year project that is providing expert literacy teaching to six-year-old children who are struggling to learn to read and write.

1.3 The brief was to:

- review the research on the long-term consequences of literacy difficulties for individuals and for society;
- estimate the costs to the public purse that result;
- estimate the return on investment of early intervention to address literacy difficulties.

## 2. Long-term outcomes of literacy difficulties: scenarios

2.1 Government statistics show that every year around 6-7% of eleven year olds in England leave primary school with very poor literacy skills (below National Curriculum Level 3 in English). This represents a literacy level equivalent to that of the average seven or eight year old. 9.2% of all boys leave primary school at this level in reading.

### Percentage and numbers achieving below Level 3 in English

	1998	1999	2000	2001	2002	2003	2004	2005
%	7*	7	6	7	7	6.7	6.9	6.3
Numbers	47,138	48,391	40,992	48,916	43,008	42,624	42,400	38,700

\*Pre-2003 data is only available rounded to the nearest percentage

2.2 The number of children leaving primary school with very poor literacy skills has remained largely static over time.

2.3 Information on the profile of these very low-attaining children is available from an annual analysis conducted by the Primary National Strategy.

- A very high proportion (68%) of the children with very poor literacy skills are boys. This over-representation is much greater for literacy than for mathematics, where only 55% of the very low achievers are boys.
- More of the children than would be expected from total population figures are summer-born – 40% in the low attaining group compared to 34% of the total cohort.
- The children are much more likely to be living in poverty than their better-reading peers. 38% of those attaining below Level 3 in English are eligible for free school meals, compared to 18% of all children.
- They are more likely to be learning English as an Additional Language (EAL) than the population as a whole (15% compared to 10%), and slightly less likely to be of white UK origin (72% compared to 77%). Poverty appears to be more influential than either EAL status or ethnicity, however.

2.4 The following scenarios illustrate the range of experiences that these poor readers are likely to have over the life course. The scenarios have been chosen to exemplify key findings from research on the correlates and long-term sequelae of early literacy difficulties.

## Scenario A

Adam was brought up on a troubled local authority housing estate with endemically high unemployment levels. Neither his parents, paternal grandfather nor uncles were in work while he was at school. There were no books at home and opportunities for language development were restricted. His parents wanted the best for him, but did not see education as particularly important. Both his mother and father had had negative experiences of school themselves, and were alternately anxious and aggressive when in contact with their children's teachers. Adam's father had significant literacy difficulties and had recently been assessed as dyslexic by the local Job Centre.

Adam attended nursery class and started 'big school' with enthusiasm when he was just four. He tried hard, but by the end of his second year he had made almost no progress with reading. He found the fine motor movements involved in handwriting very difficult and began to dislike writing, as his work looked so messy.

By the time he was seven he was well behind his peers and had come to feel, as had his parents before him, that school was not a place where he could succeed. Over the course of the next few years he became increasingly disaffected. He had help in a group with his reading, saw an educational psychologist and was diagnosed as dyslexic. By the end of his primary years he had made some progress but was still well behind his peers.

At secondary school he had further help from the school's special needs department. He was placed in lower sets, attended poorly and was not entered for examinations. He left school at 16 with no prospects of employment or training.

## Scenario B

Andrew experienced a great deal of turbulence in his early life. He was put into voluntary care when he was 22 months old and placed with a foster family until he was three, when he returned to the care of his father. This lasted for less than six months. Andrew then began the first of several long-term foster placements. During each placement his behaviour became too difficult for the carers to manage, necessitating a change of provision. At the same time he was behaving in extremely challenging ways in school. This very difficult behaviour – tantrums, violent outbursts alternating with extreme quietness, lack of boundaries and refusal to co-operate – became a major barrier to his learning. By the end of Year 1 he had made almost no progress in reading, writing or mathematics.

His challenging behaviour continued throughout Key Stage 1 and, after one particularly violent outburst in which he tried to trash the headteacher's office, he was briefly excluded from school for the safety of the other pupils.



By the end of Key Stage 1, at seven, he was still a non-reader. Over the course of Key Stage 2 his behaviour deteriorated and he was referred to the local authority's behaviour support service. This plus a stable, supportive foster placement meant that he settled and began to try hard in school. He made good progress in mathematics and science, but not in English.

He entered secondary school at 11 with a reading age below that of the average eight-year-old and found it increasingly difficult to access the curriculum. His behaviour problems worsened and he had a series of fixed-term exclusions culminating in a permanent exclusion. He spent some time in a Pupil Referral Unit before re-integrating into another secondary school. Entering half way through Year 10, at the age of 15, he was placed in lower sets and not entered for exams. He began to offend and had support from the local authority Young Offenders' Team, where a key worker encouraged him to enrol on college vocational courses. By now, however, his offending (fuelled by drug use) had become serious. He dropped out of college and a few months later began the first of several spells in prison.

## Scenario C

Katie, the youngest of three sisters, was not a very confident child when she started school. Her speech was immature and she sometimes confused words. She was on a waiting list for speech therapy. She had limited general knowledge.

She loved school and always tried her best, but made very little progress with reading and writing. At six she could not read the simplest picture books with captions. She found page turning difficult and was unsure where to start reading or which way to go.

Seen as slow by her peers, she began to find friendships a problem. She appeared unhappy and was sometimes reluctant to go to school in the mornings. Her progress remained slow throughout primary school.

The transition to secondary school proved a major trauma for her and her attendance was poor. She did badly in exams and left school with few qualifications. For a while she worked in retail, until she became pregnant and married in her early twenties. A year later came her first bout of serious depression. She was treated by her GP but the problems recurred, and in her thirties she had a long spell in hospital. Soon after that, she separated from her husband. She did not return to work and brought up the couple's three children on state benefits.



## Scenario D

Sian was the youngest of four children. Her siblings all attended special schools. Sian was regarded as the bright one of the family and her primary school gave her every support – withdrawal help in a group with a teaching assistant (TA), and extra TA support in class. Despite this she found literacy a major struggle. In Key Stage 2 her teachers became increasingly concerned that because she could not read she was not able to access the curriculum. By Year 5 they told her parents they were not sure she would cope in a big secondary school. Statementing procedures were initiated and the decision made that at 11 she would transfer to a special school for children with moderate learning difficulties.

Sian reacted badly to separation from her friendship group and lost a lot of her motivation. Her secondary school years were chequered by bouts of poor behaviour and she did not do well, despite being offered a vocational curriculum and opportunities for further study at a college of further education.

Between having children, she has been in low-paid employment for most of her adult life and draws on benefits to supplement the family's income. It distresses her that she is not able to support her own children with their reading and that they too are now showing early signs of literacy difficulties.

## Scenario E

Daniel is of African-Caribbean heritage and was brought up by his mother and grandmother. During his first year in school his hearing was poor, and he was still waiting for an operation on his ears in Year 1. This appeared to affect his reading development and he struggled to learn letter sounds and simple words.

He worked well in primary school, making some progress in literacy with remedial help, but lacked confidence in himself as a learner.

A bright boy, he was placed in lower sets in secondary school and began to associate with a group of boys who rejected learning. Street culture became increasingly important to him and he put no effort into any of his school work.

After two years of this, strenuous efforts by the school, including allocating him a personal mentor, succeeded in re-engaging him and he achieved several vocational qualifications (GNVQs) and Maths GCSE – but not English. Offered the chance of further education, he declined and left school to take up a variety of short-term jobs interspersed with periods on benefit.

This research is summarised in the next section.

2.5 The research that has contributed to building these scenarios comes from a number of sources. Some is from specific studies of school-aged children with very poor literacy skills; some from the two major national birth cohort studies that have followed up to adulthood thousands of children born in a single week in 1958 (the National Child Development Study, NCDS) and in 1970 (British Cohort Study, BCS70). Wherever possible, findings from these studies on those with very poor/very low literacy skills (corresponding to a school-age below National Curriculum Level 3 measure, and affecting around 6% of the adult population) have been used. In some cases findings are only available on a larger group with poor/low literacy skills (corresponding to a school-age below National Curriculum Level 4 measure and affecting around 20-23% of the adult population).

# 3. Research on the long-term outcomes of literacy difficulties

## 3.1 Very poor literacy and special educational needs

3.1.1 The largest group of children making a call on special educational needs (SEN) resources are those with literacy difficulties<sup>2</sup>.

3.1.2 Children leaving Key Stage 1 without having learned to read will in almost all cases be identified by their primary school as having special educational needs and be placed on the 'School Action' or 'School Action Plus' stages of the national SEN Code of Practice. A difficulty with basic skills, in literacy alone or in both literacy and other areas of learning (the SEN categories specific learning difficulties and moderate learning difficulties), is the most commonly occurring type of SEN, more common than the category behavioural, emotional and social difficulties. By the age of 11, 34% of children with very poor literacy skills will have Statements of special educational needs.

## 3.2 Antisocial behaviour

3.2.1 There is a significant link between poor literacy and antisocial behaviour.

3.2.2 One study<sup>3</sup> found that a quarter to a third of ten-year-olds with antisocial behaviour had a specific reading difficulty (Reading Age two or more years behind their chronological age.)

3.2.3 A number of researchers<sup>4</sup> have demonstrated the increased incidence of literacy difficulties in children with social, emotional and behavioural difficulties. The link is evident even when other factors such as home background and general cognitive ability have been controlled for.

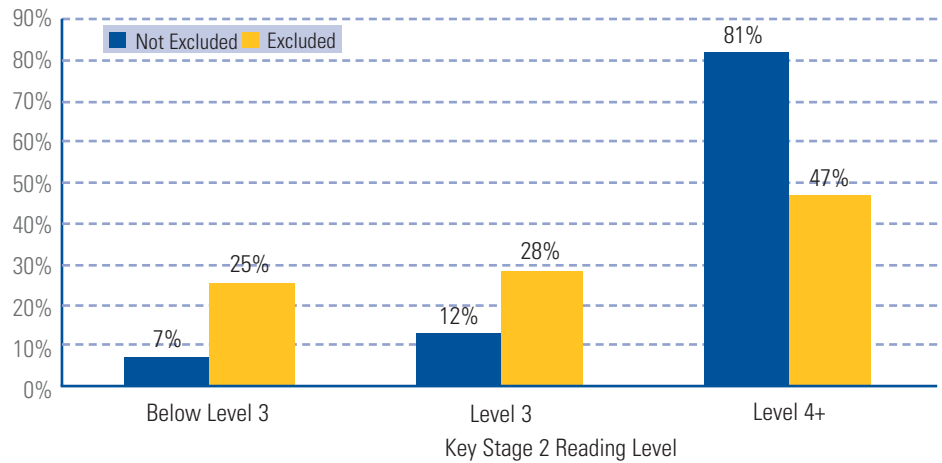
## 3.3 Exclusions

3.3.1 Pupils with poor literacy skills are much more likely to be excluded from school than their peers.

3.3.2 Gross and McChrystal (2001)<sup>5</sup> found that more than half of permanently excluded pupils in their sample had very significant learning difficulties (in the lowest 2% of the population for literacy and/or numeracy attainment), in addition to significant emotional and behavioural difficulties. Galloway (1985)<sup>6</sup> found that 76% of the permanently excluded pupils he studied were two or more years behind their peers in reading. Martin (1995)<sup>7</sup> noted that half his sample had experienced early literacy difficulties.

3.3.3 A recent analysis by the DfES of all pupils permanently excluded in Year 9 in the 2004-5 academic year data showed that pupils who entered secondary school with very low literacy skills (below National Curriculum Level 3 in English) had an exclusion rate five times that of pupils entering Key Stage 3 at Level 4 or above (0.5% of those with severe literacy difficulties were excluded, compared to 0.1% of those with at least average literacy levels).

**Figure 1 Excluded pupils are more likely to have lower Key Stage 2 attainment**



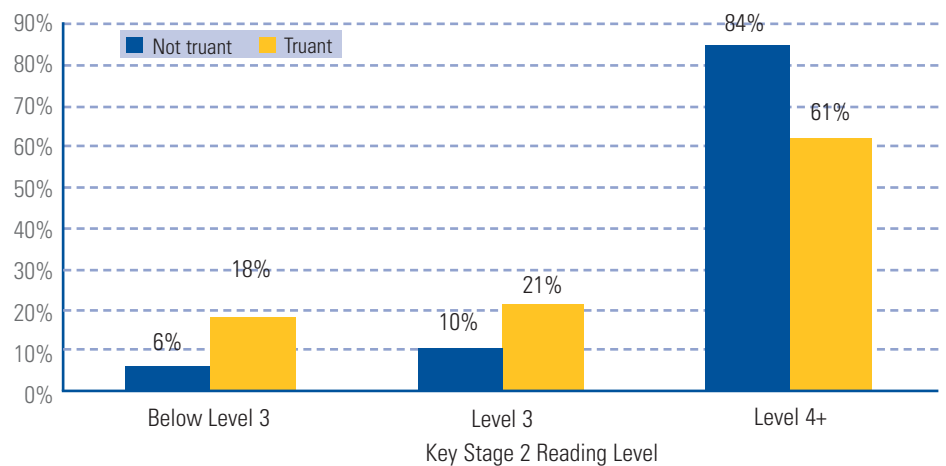
3.3.4 Outcomes for permanently excluded pupils are poor. In one sample 63% had criminal convictions by the age of 24, with a particular risk of involvement in violent crime and a suicide rate 19 times the national rate for their age.<sup>6</sup>

### 3.4 Truancy

3.4.1 Those entering secondary schools with poor reading skills are over four times more likely to truant than those who enter with age-appropriate skills. A 2006 DfES analysis of Year 9 pupils showed that 9% of those who had been very poor readers at the end of primary school were classified as persistent truants in Year 9, compared to 2% of those who had been average or above average readers.

3.4.2 Put another way, pupils entering secondary school below Level 3 in English made up 6% of the cohort but 18% of truants.

**Figure 2 Pupils who truant are more likely to have lower Key Stage 2 attainment**

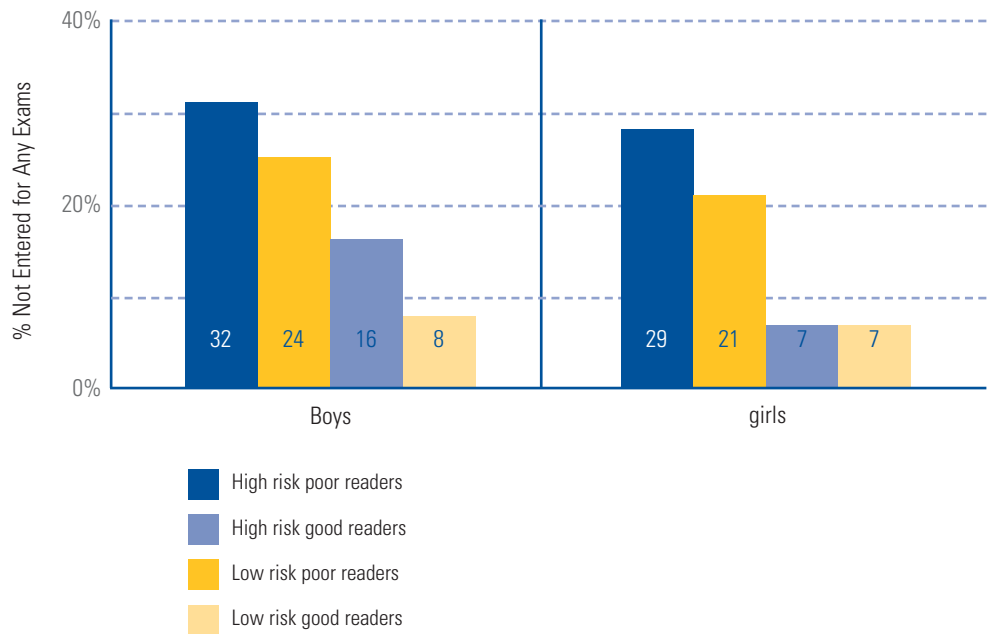


### 3.5 Attitudes to education and entries for public examinations

3.5.1 16-year-olds with poor reading skills (in the bottom 20% of scores on a reading test taken at the age of ten) were up to four times more likely not to be entered for any public examinations than good readers with similar levels of early social disadvantage.

3.5.2 This finding comes from Parson and Bynner's<sup>9</sup> study of outcomes for those in the BCS70 cohort who were poor or good readers at the age of ten and had either high or low levels of additional social disadvantage risk factors (social class, parents' education, overcrowded housing.)

**Figure 3 Not entered for any exams  
Boys and girls by reading and social exclusion risk at 10**



3.5.3 73% of those who had been poor readers with high levels of additional social disadvantage risk factors at ten ('high risk' poor readers) wanted to leave school at 16, compared to 48% of high risk good readers and 31% of low risk good readers.

3.5.4 At age 16, over half of boys with poor reading skills thought that school was a waste of time.

3.5.5 Only 1-2% of pupils leaving primary school below National Curriculum Level 3 get 5 good GCSEs, compared to 56% of all pupils.

## 3.6 Employment

- 3.6.1 Poor readers as adults are much less likely to be in employment than better readers. If they are in employment it is likely to be low-paid.
- 3.6.2 In their 1997 study of the impact of poor basic skills on 37 year olds in the NCDS cohort, Bynner and Parsons found that 4% of those who left school at 16 and had very low literacy when tested at the age of 37 had **never** worked<sup>10</sup>.
- 3.6.3 The same study showed that over a fifth of men who were long-term unemployed or sick at the age of 37 had very low literacy skills.

**Table 1 Proportion of men long-term unemployed/ sick**

Very Low literacy	23%
Low literacy	17%
Average literacy	4%
Good literacy	4%

- 3.6.4 People with very low literacy or numeracy skills, compared to those with good skills, were up to eight times as likely to be living in a household where both partners were out of paid employment.
- 3.6.5 Parson and Bynner's study of those in the BCS70 cohort who were poor readers at the age of ten showed that for women, poor reading was the main barrier to being in full-time employment at 30, rather than social exclusion risk factors. For men, poor readers were two to two and a half times more likely to be unemployed than good readers with similar levels of early social disadvantage.
- 3.6.6 Looking only at those who left school at 16, so as to control for the influence of extended education and resulting qualifications, this study found that among those in paid work, poor readers of both sexes were much more likely to be in manual work. Early social exclusion increased this risk still further. Poor readers of both sexes were less likely than other early leavers to report modern work-related skills (computing/IT), to have any academic or vocational qualifications, or to have ever received work-related training. These differences were largely unrelated to early social exclusion risk – they resulted from poor literacy per se, not from any associated social disadvantage.

3.6.7 In the NCDS study of 37 year olds, Bynner and Parsons found that if working, nearly half of men and over half of women with low or very low literacy skills were on very low wages.

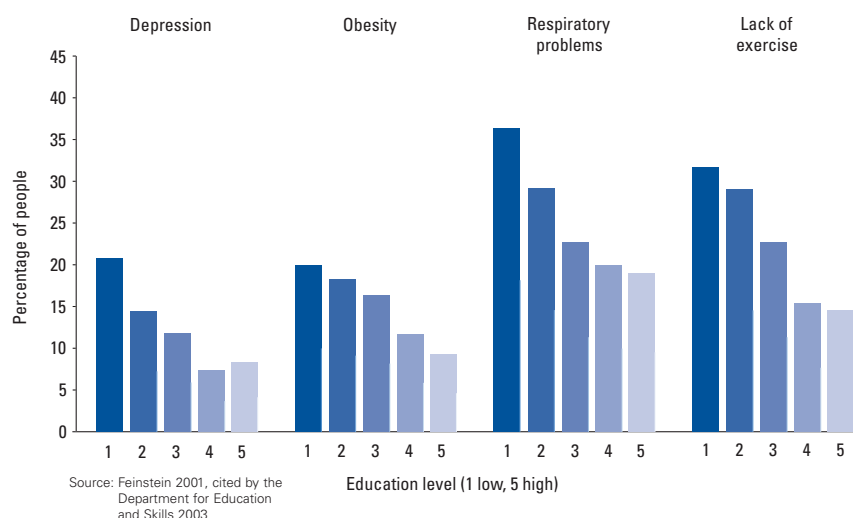
**Table 2 Proportion of cohort on low wages**

	Men <£200 per week	Women <£150 per week
Very low & low literacy	42%	53%
Average literacy	35%	43%
Good literacy	24%	39%

3.6.8 75% of men and 63% of women with very low literacy skills, aged between 23 and 37, had never been promoted at work, compared to 41% of men and 31% of women with good literacy. The differences for those with poor numeracy were not so large. When the same comparison was made only for those who left school at 16 the differences remained, suggesting that poor basic skills were the main factor.

### 3.7 Health

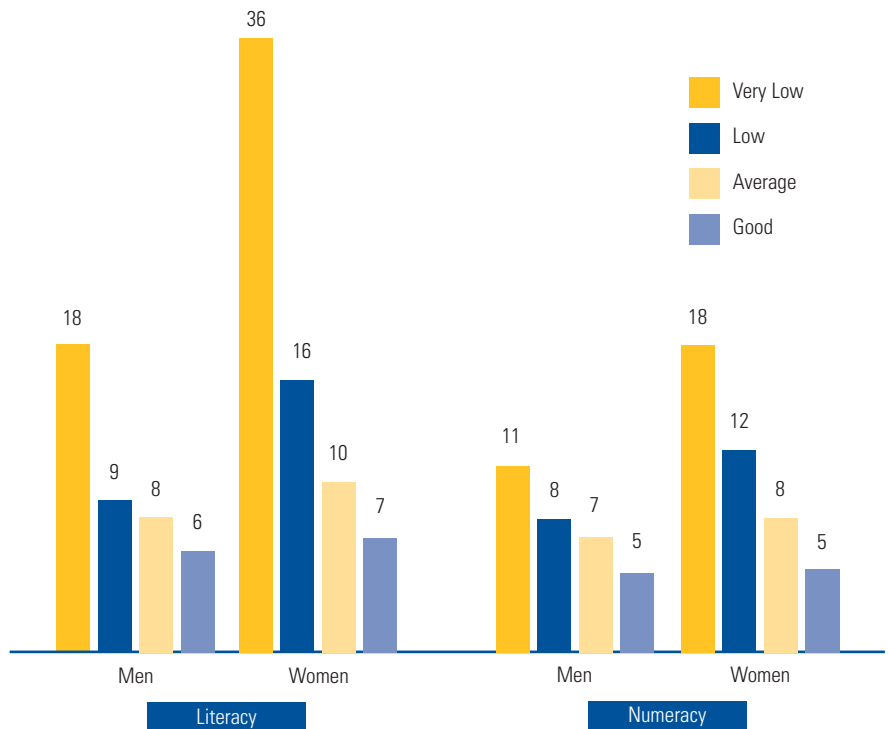
#### The relationship between education and health outcomes



3.7.1 Bynner and Parsons asked 37 year olds in the NCDS study to report on their physical health over the last year. Over 75% of men overall reported good health, but for men in the very low literacy group this reduced to 50%. Both men and women with very poor literacy skills were two to three times more likely than those with good literacy skills to smoke heavily, drink alcohol more than once a week, and be obese on a body mass index calculation. These findings are independent of social disadvantage. Parsons and Bynner also found that 30 year-old men and women who had been poor readers at ten were more likely than good readers of similarly high levels of early social disadvantage to smoke cigarettes. Women poor readers were twice as likely to have a drink problem as similarly disadvantaged good readers.

3.7.2 Psychological well-being was also assessed. Women with very low literacy skills were five times more likely to be classified as depressed than those with good skills.

**Figure 4 'Depressed' on the Malaise inventory**



### 3.8 Crime

3.8.1 48% of the prison population read somewhat poorly (at or below level 1 in the adult national qualifications framework) compared to 21-23% of the general population. 25% of juveniles in custody have a reading age below that of the average seven year old.<sup>11</sup>

3.8.2 Parsons<sup>12</sup>, using data from BCS70, found that poor basic skills were significantly correlated with criminality, even after controlling for social disadvantage, poverty, disruptive family environment, poor education experiences and early signs of emotional and behaviour problems.

3.8.3 The incidence of dyslexia and other hidden disabilities in the prison population, at 20%, is between three and four times that found in the general population<sup>13</sup>.

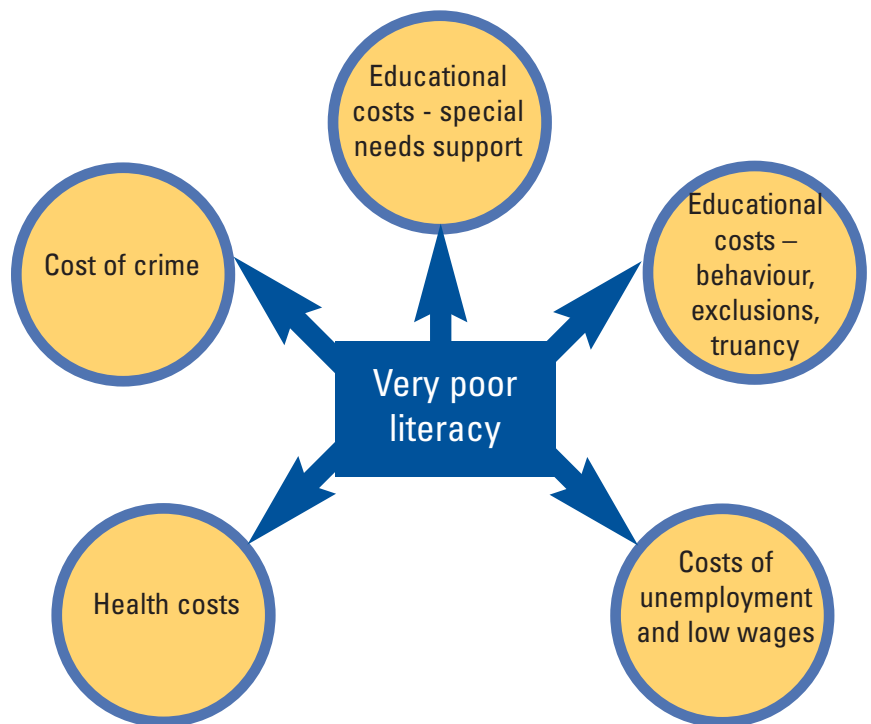
### 3.9 Intergenerational effects

3.9.1 Children whose parents have very low literacy levels (at or below Entry Level 2 of the adult national qualification framework) tend to have exceptionally low child test scores in reading<sup>14</sup>. For adults, being at or below Entry Level 2 strongly predicts their children's test performance, whereas above this level the prediction tends to be weaker and at the highest qualification levels it largely disappears. The fact that this second result stands even when parents' qualifications are taken into account is particularly important.



# 4. Methodology

- 4.1 Building on the research findings outlined in the last section, this section describes the methodology used to attach costs to the probable life experiences of those leaving primary school with very poor literacy skills.
- 4.2 We identified five different types of costs for children who have not learned to read by the age of seven.



- 4.3 The estimation and full quantification of social costs depends on four critical pieces of data:
  - population numbers;
  - prevalence rates i.e. what percentage of the population have this problem or incur this cost;
  - typical frequency and/or duration of the problem, i.e. number of episodes and over what period of time;
  - unit cost information, actual or proxy, for each specific type of social cost.

4.4 **The population number** for those with very poor literacy skills was taken as 38,700 per year group. This was the number of children leaving primary school in 2005 with attainment below National Curriculum Level 3 in English. At 6% of the age cohort it provides a good match with the 6% of adults with very low literacy skills identified in the Basic Skills Agency’s National Child Development Study data<sup>15</sup> and the 6% at national qualifications framework Entry Levels 1 and 2 identified in the 2003 Skills for Life Survey<sup>16</sup>.

- 4.5 Of these 38,700 children, 26,400 were boys and 12,300 were girls.
- 4.6 In calculating **prevalence rates** we have used a measure of differential incidence or use, subtracting the incidence or use of services in the population of average readers from that in the very low literacy population. For example, if the incidence of depression in the general population is 10% of women with average literacy but 36% of women with very poor literacy, the differential service usage attributable to poor literacy skills will be 26%.
- 4.7 The estimation problem in this methodology is to establish the extent to which very poor literacy status operates over and above other factors that tend also to be in operation for low-literacy children and adults, such as poverty, lack of parental involvement in learning, or slow cognitive development. Wherever possible, therefore, comparison groups have been children and adults from other disadvantaged families.
- 4.8 Prevalence data came from two sources – actual information from longitudinal studies of children who were poor readers at school, and information from a single point in time on adults who form a proxy group for those who were poor readers in childhood (that is, those in the NCDS and BCS surveys who were assessed as having poor or very poor literacy as adults). Since data on the NCDS and BCS survey population is only available up to the age of 37, we took that as the cut-off point for our costings.
- 4.9 We then identified or assumed a **frequency and/or duration** for each problem and identified typical associated costs. We used these to work out a total cost to the public purse for that problem or event.
- 4.10 For many events we were not able to predict frequency, so only one episode was costed (for example, exclusion from school).
- 4.11 We have taken **unit costs** from other published cost-benefit studies, and from national sources for health and social care services, criminal justice and benefit receipts. We calculated other costs from first principles using agencies' data. 2006 price levels were applied for services as they would have been provided in 2006, using the best approximations to long-run marginal opportunity costs.
- 4.12 In calculating the return on investment for early literacy intervention, we took a figure of 79% as the 'success rate'. This is based on a study<sup>1</sup> of 651 11-year-old children who had received Reading Recovery five years previously, of whom 79% achieved Level 3+ at age 11, i.e. had been lifted out of the 'very low literacy' category and can be assumed to have remained outside this category in succeeding years.

**Example**

10% of women with average literacy levels experience depression and 36% of women with very low literacy skills experience depression. The differential frequency is therefore 26%.

Applying this figure of 26% to the 12,300 females in the year group population of 38,700 gives 3,198 more women with very poor literacy skills who can be expected to experience depression than would be expected if they were average readers.

79% of these (2,526 women) can be assumed to escape depression because early literacy intervention has successfully lifted them out of very low literacy levels.

We assumed that the differential rate of depression applies for adult life, and cannot be limited to a particular age range, so those with poorer literacy levels will be more likely to experience depression whatever their age.

The costs of depression were identified as £177 per year per depressed person.

This cost was then applied throughout the adult lives (ages 18-37) of the identified 2,526 subjects to obtain total cost savings for depression for women.

The same process was used to calculate costs for men, using the appropriate differential frequency rate.

- 4.13 We have included in this report only 'hard' costs. 'Hard' costs in our terminology are the ones that mean that resources are spent or lost, and which have a direct monetary effect. They usually fall upon institutions in the public, private and voluntary sectors. 'Soft' costs – those such as illness, loss of income or the stress or pressure borne by friends and family - have been excluded because information on them is too scarce.
- 4.14 We have not included the costs of intergenerational effects. Although these are important, no data were available that would enable them to be quantified.

## 5. Cost assumptions

5.1 The prevalence rates, assumptions about frequency or duration and the unit costs used in this study are detailed in Appendix 1, together with the sources of information on which they are based.

5.2 A test discount rate (TDR) of 3.5% has been assumed for all Net Present Value calculations.

5.3 A GDP deflator has been used for future revenues based on published Treasury rates for the initial period, and an assumed phased shift to a trend rate of 2.5% thereafter.

### 5.4 Educational costs – special needs support

5.4.1 Special educational needs (SEN) costs to education were derived from information on the actual costs of providing SEN support in a sample of four schools (two primary, two secondary) in two different local authorities. The schools were chosen to represent extreme ends of the scale of social deprivation. In the two primary schools only pupils who attended the school in Key Stage 1, and might therefore have had access to early literacy support had it been available, were included. Pupils joining the school over the course of Key Stage 2 were excluded from the costings, as were pupils whose need for literacy support was solely linked to learning English as an additional language. Costs related to SEN behaviour support linked to children's literacy difficulties were included, but no information was available on attendance support. In the secondary schools all SEN, behaviour and attendance provision was costed for children who entered the school with very low literacy levels.

5.4.2 SEN costs averaged out at £2,187 per pupil for the total Key Stage 2 phase (4 years) and £3,526 per pupil for the total Key Stage 3 and 4 phases (5 years).

5.4.3 These estimated SEN costs are conservative because they include few children with full Statements of special educational need. The local authorities surveyed had funding policies that had successfully reduced reliance on Statements; children did not need to have a Statement in order to receive support. This is not yet the case in all local authorities, however. The issuing of Statements for children whose only problems are poor basic skills is declining nationally, but if the cost of Statements running at their current numbers is included (Case 2 in Appendix 4 of this report) then an additional £1,821 per pupil per year needs to be added to the total per child lifetime costs of poor literacy, to represent the costs of maintaining a Statement for 34% of very poor readers over their secondary school careers. Some of these children (a number it is not possible to estimate) will have had Statements during Key Stage 2 also, carrying additional substantial costs.

5.4.4 It has been assumed that without reading intervention pupils would have received three hours of input from an educational psychologist at a cost of £85 per hour. Again, this is a conservative estimate. If the pupil were assessed for a Statement of SEN, the actual educational psychologist time for an initial assessment and potential involvement in subsequent annual reviews would be very much greater.

## 5.5 Educational costs – truancy and exclusions

5.5.1 Data provided by the DfES on the differential rates of truancy and permanent exclusions for Year 9 pupils who left primary school with very low literacy levels (below National Curriculum Level 3 in English) have been used to estimate these costs, with the Year 9 differential used as a proxy indicator for a differential for the whole of Key Stages 3 and 4. Pupils were classified as truants if they had 12 or more half-days of unauthorised absence in the first term of the 2005-6 school year.

5.5.2 A frequency of one permanent exclusion (at a cost of £1,000) and one year in a pupil referral unit (at a cost of £12,555, less the Age-Weighted Pupil Unit (AWPU) that would otherwise have been spent on the pupil – approximately £3,000) has been assumed.

5.5.3 Similarly, a frequency of one episode of truancy has been assumed, at a cost of £1,500 for one prosecution, plus two hours (at £15 per hour) of Education Welfare Officer time (both inflated to 2006 prices). This is a conservative assumption; the probability is multiple episodes of truancy over Key Stage 3 and 4, but there are no data available on the exact frequency.

## 5.6 Cost of unemployment and low wages

5.6.1 In the costs relating to employment, we have not included the economic effects of reduced spending power, nor the costs to industry of poor basic skills through, for example, lost orders and inefficiencies. An early study by the Basic Skills Agency estimated these as £4.8 billion per annum.

5.6.2 The costs that have been included relate to lost tax and National Insurance (NI) revenues to the Treasury, and the cost of unemployment benefits. Costs of housing benefit and social housing have not been included, because of lack of data on the housing status of adults with very low literacy skills.

5.6.3 Differential time spent in full employment was used to cost the impact on tax and NI revenues. The Basic Skills Agency study *It doesn't get any better – The impact of poor basic skills on the lives of 37 year olds*<sup>17</sup> showed a differential between those with average literacy and those with very low literacy of 2.5 years of employment for men and 2.7 years for women. If remuneration is assumed at the average rate for men and women (from the Office for National Statistics, indexed to 2006 rates using pay indices – also from the Office for National Statistics), and with tax and NI rates at the average rate (HM Treasury 2003-4) then a sum for differential tax and NI is obtained which has been spread evenly over the 21 year earnings period to the age of 37.

5.6.4 It has been assumed that males not in employment for 2.5 years (the differential period) would be in receipt of Job Seeker's Allowance at the usual rate. As for lost tax and NI revenues, a sum for this period has been calculated and spread evenly over the 21 year earnings period. The equivalent calculation was not undertaken for females, as it was considered less certain that when not employed they would be claiming Job Seekers' Allowance.

## 5.7 Costs of being NEET (Not in Education, Employment or Training)

5.7.1 A 2002 Social Policy Research Unit report<sup>18</sup> provides estimates of the social costs incurred by this group as a result of underemployment, poor health, substance abuse, teenage pregnancy and involvement in the criminal justice system. These have been applied to the differential percentage of the very low literacy group that would have been NEETs from 16-18, having first taken out costs already covered elsewhere in the current study, so as to avoid double counting. Costs taken out were the Job Seeker's Allowance (the data was prepared at a time when 16-17 year olds received JSA), the costs of crime and (for males only) the costs of being teenage mothers. Prices were indexed to June 2006 using RPI (RP02). These produce annual costs of £5,802 (male) and £10,072 (female) at 2006 prices. Costs for females are higher because of the high rate of teenage pregnancies in the NEET group. The costs taken from the SPRU report were assumed to be net of any savings to the education system resulting from early school leaving.

## 5.8 Health costs

5.8.1 We have only been able to include in health costs the costs of depression and obesity, and not costs associated with generally poor health, since these could not readily be quantified. The costs of substance abuse (including alcohol) are included within the costs of being NEET at the age of 16-18. They have not been quantified beyond this age range, as no information was available on the prevalence of substance abuse in the very low literacy adult population. The costs of smoking have not been included at any age, since the tax benefits accruing to the Exchequer are likely to cancel out the costs to the health service that are associated with smoking,

5.8.2 The annual cost of depression was calculated from data used in Leon Feinstein's 2002 study for the Centre for Research on the Wider Benefits of Learning<sup>19</sup>. The study refers to NHS costs of depression of £420 million in 1993, as part of total costs of depression in that year of £3 billion. Feinstein looked at more recent data and estimated the public cost at £900 per year per depressed person. Using the 1993 proportion, we have estimated solely NHS costs based on the 1993 ratio of NHS costs to total costs. Differential rates of depression were confirmed by reference to the BSA study. Feinstein's costs related to the prevalence of psychiatric morbidity in the working age population. We have used data on those who were 'depressed' on the malaise inventory used in the Basic Skills Agency study *It doesn't get any better*. We compared these figures (which were split by gender and literacy levels) and noted that they showed levels of depression consistent with those used by Feinstein, confirming the validity of our use of Feinstein's data. This differential rate and annual cost was then applied throughout the adult lives of the cohort (from 18-37). We have assumed that the differential rate of depression applies for adult life, and cannot be limited to a particular age range, so those with poorer literacy levels will be more likely to experience depression whatever their age. The same approach was applied to obesity data.

5.8.3 Obesity cost data and general prevalence in the adult population was also obtained from the Feinstein study. Per person cost data was obtained by applying population data from the Office for National Statistics to derive a per person annual cost of £446 (after indexation to 2006 prices). Again, as with depression, we have assumed that the differential rate of obesity applies for adult life, and cannot be limited to a particular age range. Those with poorer literacy levels will be more likely to be obese whatever their age.

## 5.9 Costs of crime

5.9.1 We have taken a conservative approach in estimating the costs of crime that result from early failure to learn to read. We know that a high proportion of the prison population have literacy difficulties, but we do not know how much higher the risk of being involved in crime is for those with poor literacy skills compared to those with average literacy skills. We know that 18 to 30 year olds without qualifications are four times more likely to be persistent offenders than those with some qualifications<sup>20</sup>, but not how much of this link is explained by factors that are associated with failure to achieve qualifications other than literacy skills. We have therefore based one set of estimates of the costs of involvement with criminal justice system (case 1 in appendix 4 of this report) solely on those children who have behaviour problems (conduct disorder) linked to their literacy difficulties. We were able to estimate from our direct work with four schools the proportion of children with very poor literacy skills who receive special needs help for behavioural, emotional and social difficulties (15.8% of our sample). We then applied this percentage to estimate the later costs of crime, drawing on figures from a study by Stephen Scott and his colleagues at the Institute of Psychiatry<sup>21</sup>. Scott followed up ten-year-olds diagnosed with conduct disorders to the age of 27, and provides actual costs of the public services they used, including the costs of court appearances and imprisonment.

5.9.2 A less conservative approach (Case 2 in Appendix 4) starts from the percentage of young people and adults in the prison population who have very low literacy levels and assumes that, had those literacy difficulties not existed, the individuals involved would not have been in prison. The costs for that proportion of the prison population are then assumed to be saved. This is the approach used in several recent studies of other vulnerable groups, for example those looked after by the local authority<sup>22</sup>. In the current study, the figure of 25% of those in youth custody who have reading ages below those of the average seven-year-old was assumed to apply also to the adult prison population, and used as the basis for calculations. The calculations examine the age profile of prisoners and map the differential savings. For instance, when the notional cohort receiving early reading intervention is aged 15-17, this age group represents 3.7% of the male prison population. We have therefore assumed that for this age in any year, the percentage of the current prison population who would not be in prison is 1/3 (i.e. one year group) times 3.7% (the prison population for this age band) times 25% (the percentage with poor literacy skills) times 79% (the success rate of the reading intervention). Annual costs of between £25,880 and £35,862 (2006 prices) would therefore be saved throughout the age range considered (15-37).



## 6. Costs of providing early intervention to tackle literacy difficulties

6.1 The *Every Child A Reader* initiative is based on a particular intervention programme called Reading Recovery. The cost of providing Reading Recovery is approximately £2,389 per child (Appendix 3). This includes the cost of equipment, teacher time, the professional development provided to the teacher by the local authority, and the support provided to the local authority by the national body which coordinates the Reading Recovery programme.

## 7. The return on investment

7.1 The total per capita costs to the public purse to age 37 resulting from failure to learn to read in the primary school years are estimated at between £44,797 (Case 1 in Appendix 4) and £ 53,098 (Case 2 in Appendix 4). Case 1, the lower-bound estimate, excludes the costs of maintaining Statements of special educational need and takes a conservative approach to the costs associated with crime. Case 2, the upper-bound estimate, includes the cost of maintaining Statements and assumes higher crime costs resulting from reading failure.

7.2 Based on evidence that the Reading Recovery intervention will lift 79% of children who receive it out of literacy failure, Table 3 shows the present value of savings that would be made to the age of 37 as a result of providing Reading Recovery at the age of six to all of the 38,700 pupils per year who currently leave primary school with very low literacy skills. The information in the table is extracted from the more detailed spreadsheet in Appendix 4.

7.3 Savings to the age of 37 are estimated at between £1,369,576,578 (Case 1) and £1,623,374,471 (Case 2).

7.4 Based on a 79% success rate, the return on investment for every pound spent on the *Every Child A Reader* programme is estimated to be in the range £14.81 to £17.56. The long-term return on investment from the £10M spent on the *Every Child A Reader* initiative can therefore be estimated at between £148.1M and £175.6M over the period between 2006-8 and 2037-9, when the children currently accessing the programme reach the age of 37.

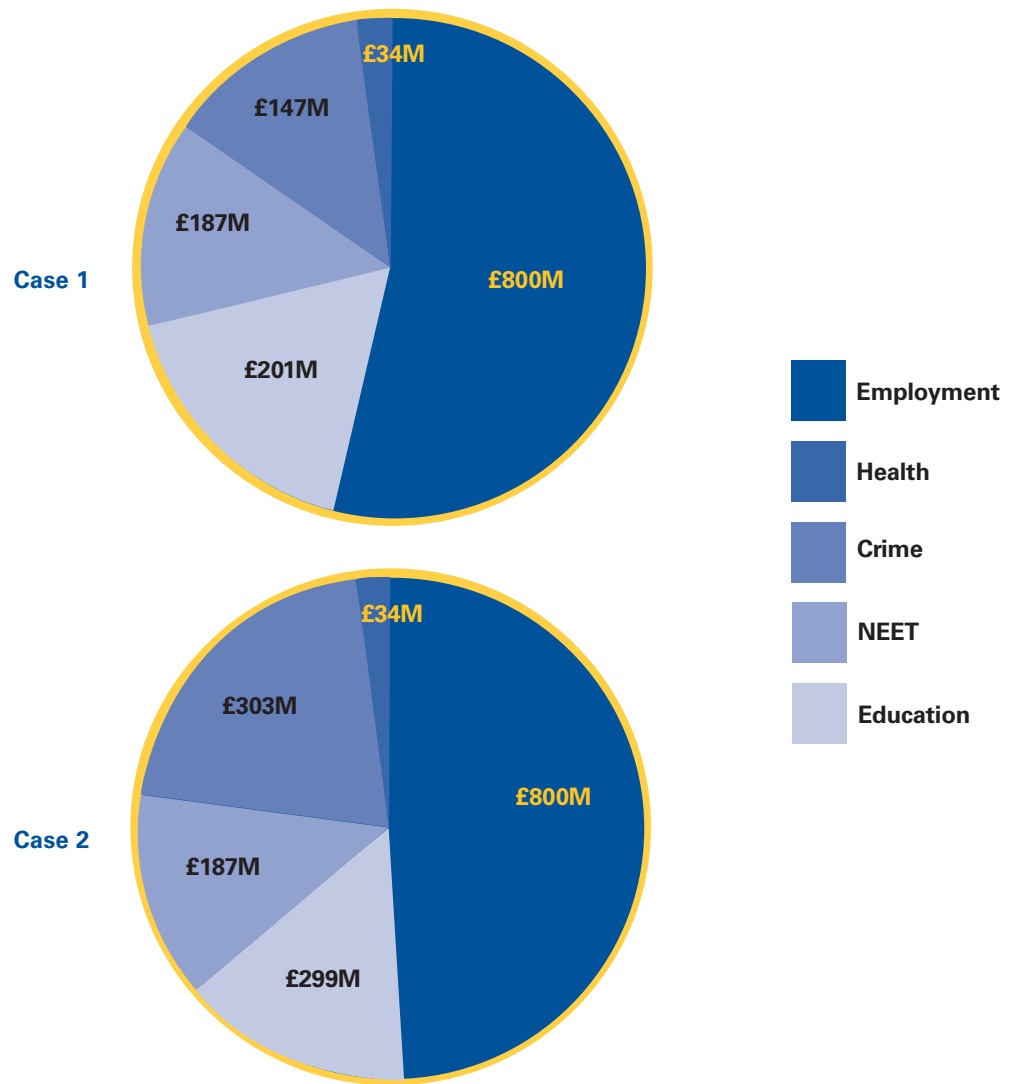
7.5 Figure 5 shows the breakdown of savings by cost category. It can be seen that employment-related costs dominate, with the largest savings made as a result of reduced expenditure on unemployment benefits and increased revenue from tax and National Insurance Contributions. Savings on the costs of crime (case 2) and on costs to education (case 1) form the second highest category.

**Table 3 Cost savings as a result of intervention**

<b>Case 1</b>	Cost category	Total present value savings to age 37(£)
Education costs	Special needs support - literacy and behaviour (primary)	68,959,959
	Special needs support - literacy and behaviour (secondary )	122,615,417
	Educational psychologist time	3,759,777
	Permanent exclusions	1,572,765
	Truancy	4,368,153
	<b>Education total</b>	<b>201,276,071</b>
Employment costs	Tax and NI revenues	628,430,079
	Unemployment benefits	171,554,800
	<b>Employment total</b>	<b>799,984,879</b>
Social costs associated with being NEET (Not in Employment, Education or Training) at age 16-18	Substance abuse and teenage pregnancy	187,409,769
	<b>Social cost total</b>	<b>187,409,769</b>
Health costs	Depression	19,662,975
	Obesity	14,163,421
	<b>Health total</b>	<b>33,826,396</b>
Costs of crime	Court appearances, probation, youth justice, prison	147,079,461
	<b>Crime total</b>	<b>147,079,461</b>
<b>TOTAL</b>		<b>1,369,576,578</b>

<b>Case 2</b>	Cost category	Total present value savings to age 37(£)
Education costs	Special needs support - literacy and behaviour (primary)	68,959,959
	Special needs support - literacy and behaviour (secondary )	122,615,417
	Cost of maintaining a Statement of special educational needs	98,153,189
	Educational psychologist time	3,759,777
	Permanent exclusions	1,572,765
	Truancy	4,368,153
	<b>Education total</b>	<b>299,429,260</b>
Employment costs	Tax and NI revenues	628,430,079
	Unemployment benefits	171,554,800
	<b>Employment total</b>	<b>799,984,879</b>
Social costs associated with being NEET (Not in Employment, Education or Training) at age 16-18	Substance abuse and teenage pregnancy	187,409,769
	<b>Social cost total</b>	<b>187,409,769</b>
Health costs	Depression	19,662,975
	Obesity	14,163,421
	<b>Health total</b>	<b>33,826,396</b>
Costs of crime	Prison costs	302,724,165
	<b>Crime total</b>	<b>302,724,165</b>
<b>TOTAL</b>		<b>1,623,374,471</b>

**Figure 5**



7.6 Within the education category, assuming that the great majority of permanent exclusions and episodes of truancy occur in the secondary school years, the savings made in the secondary age group are very much greater than any within the primary phase. Indeed, since the full cost of providing Reading Recovery falls within the primary phase, there is no net gain to the primary school itself. Providing a child with Reading Recovery in Key Stage 1 will cost the school £2,389, 9% more than the £2,187 that we have estimated as the cost of providing that child with special educational needs support throughout Key Stage 2. This suggests that in economic terms it may be difficult to persuade primary schools to shoulder the full costs of intervention without targeted top-up funding.

# 8. Conclusions

- 8.1 We estimate that the return on investment for every pound spent on the *Every Child A Reader* programme is between £14.81 and £17.56 over the period between 2006-8 and 2037-9, when the children currently involved in the programme reach the age of 37.
- 8.2 We estimate the savings that would be made to the age of 37 as a result of providing Reading Recovery intervention at the age of six to all of the 38,700 pupils per year who currently leave primary school with very low literacy skills as between £1,369,576,578 and £1,623,374,471.
- 8.3 These estimates are conservative. They do not include savings that could not readily be quantified, such as the economic effects of reduced spending power, social housing costs, the costs of generally poorer health, the costs of substance abuse over the age of 18, and the costs of intergenerational effects on literacy skills.
- 8.4 Employment-related costs form the largest category of savings, at nearly £800M. Costs to the education system and the costs of crime provide the next largest source of savings.
- 8.5 Within education, the costs of literacy failure are greater in the secondary phase than in the primary phase. In economic terms, the costs to primary schools of providing intervention outweigh the benefits.



# Appendix 1

## Prevalence rates, frequency/duration and unit costs

Type of cost		Prevalence rate in total population/ average readers	Prevalence rate in poor readers	Differential prevalence	Frequency or duration	Costs
Non-Statemented special needs support linked to poor literacy skills	Primary	0%	100% <sup>1</sup>	100% <sup>2</sup>	Age 7 to 11	£2,187 <sup>3</sup> for the whole of Key Stage 2 (2006 prices)
	Secondary				Age 11 to 16	£3,526 <sup>4</sup> for the whole of Key Stages 3 and 4 (2006 prices)
Statements of special educational need (Case 2)		3% <sup>5</sup>	34% <sup>6</sup>	31%	Age 11 to 16	£1821 p.a. <sup>7</sup>
Educational Psychologist (EP) time		EPs involved with 5% of school population <sup>8</sup>	EPs involved with 50% of below Level 3 population <sup>9</sup>	45%	Assume 3 hours on one occasion	£85 per hour EP time <sup>10</sup>
Permanent Exclusions		0.1% of total school population <sup>11</sup>	0.5% <sup>12</sup>	0.4%	Assume 1 permanent exclusion and 1 year in Pupil Referral Unit (PRU)	£1000 per exclusion in administrative costs <sup>13</sup> £12,555 per annum cost of PRU less £3K age-weighted pupil unit (AWPU) <sup>14</sup>
Truancy		2% of secondary school population who were average or above readers at end of KS2 classed as truants <sup>15</sup>	9% of secondary school population who were very poor readers at end of KS2 classed as truants	7%	Assume one prosecution and an additional 2 hours EWO time	One prosecution £1500 £15/hr EWO time <sup>16</sup> (2003 prices: inflated to £1,675 using RPI at June 2006)

<sup>1,2</sup> It has been assumed that none of the pupils lifted out of the 'very low literacy' category will require SEN literacy and behaviour support throughout Key Stages 2, 3 and 4

<sup>3, 4</sup> Based on 2006 survey of schools' expenditure in two local authorities, carried out by the authors

<sup>5</sup> *Special educational needs in England*, January 2006, DfES Statistical First Release

<sup>6</sup> Primary National Strategy statistics on profile of children attaining below National Curriculum Level 3 at the end of KS2

<sup>7</sup> 2006 survey of average costs of a Statement for specific literacy difficulties in three local authorities

<sup>8, 9, 10</sup> Information from local authority contacts

<sup>11,12</sup> Data on Y9 provided by DfES; Y9 used as proxy for secondary age group

<sup>13</sup> Goodall, E. *Schools Out* (2005) London: New Philanthropy Capital

<sup>14</sup> Jackson, S. et al (2002) *The costs and benefits of educating children in care. Working paper number 4*. London: Centre for Longitudinal Studies

<sup>15</sup> Data provided by DfES

<sup>16</sup> *Estimating the short and longer term costs of statutory homelessness to households and service providers* (2003) Croydon: Institute of Public Finance

Type of cost		Prevalence rate in total population/ average readers	Prevalence rate in poor readers	Differential prevalence	Frequency or duration	Costs
Employment - revenue		Men who left school at 16 and had average literacy skills had 17.9 years of full employment by age of 37. Women who left school at 16 and had average levels of literacy had 10.2 years in full time work up to age 37 <sup>17</sup>	Women who left school at 16 with very low literacy had an average of 7.5 years in full time work up to age 37. Men had 15.4 years in full time work <sup>18</sup>	Males 2.5 years of employment Females 2.7 years of employment	Age 16-37	Tax and NI rate for men for the lost years of employment assumed to be 26.5% and for women 24.4% <sup>19</sup>
Employment - benefits	Males only			Males: 2.5 years on benefit	Age 16-37	Based on current rates of Job Seeker's Allowance of £45.50 and £57.45 (age dependent) projected to age 37 and distributed evenly from age 16
Not in Education, Employment or Training (NEET) social costs		2% <sup>20</sup>	26% <sup>21</sup>	24%	Age 16-18	£5,802(male) and £10,072(female) at 2006 prices
Depression		8% of men and 10% of women with average literacy classified as depressed <sup>22</sup>	18% of men and 36% of women with very low literacy classified as depressed <sup>22</sup>	10% for men 26% for women	Age 18-37	£177 per person p.a. (2006 prices: inflated from £125 pp p.a. at 1993 prices using RPI) <sup>23</sup>
Obesity		Men with good literacy 7% Women with good literacy 5% <sup>24</sup>	Men with very poor literacy 11% Women with very poor literacy 10% <sup>24</sup>	Men 4% Women 5%	Age 18-37	£446 per person p.a. (2006 prices)
Crime (Case 1)	Males only	2.8% <sup>25</sup>	15.8% <sup>26</sup>	13%	Age 11-27	£46,550 spread over ages 11 to 27
Crime (Case 2)	Males only			25% <sup>27</sup>	Age 16-37	Mean prisoner costs of £35,862 (under 18) and £25,880 (adult) <sup>28</sup>

<sup>17, 18</sup> Bynner, J. and Parsons, S. (1997) *It doesn't get any better*, Basic Skills Agency

<sup>19</sup> Based on Inland Revenue data for 2003-4 (the latest publicly available on the Office for National Statistics website) for the percentage of average earnings paid in income tax and NI contributions

<sup>20, 21</sup> Jackson, S. et al (2002) *The costs and benefits of educating children in care*, op. cit. 2% of those with 5 good GCSEs are NEET. 26% of those with no A\* to G GCSEs are NEET. Achieving no A\* to G GCSEs has been used as a proxy for very low literacy skills.

<sup>22</sup> Bynner, J. and Parsons, S. (1997) *It doesn't get any better*. London: Basic Skills Agency

<sup>23</sup> Feinstein, L. (2002) *Quantitative estimates of the social benefits of learning, 2: Health (Depression and obesity)* London: Centre for Research on the Wider Benefits of Learning

<sup>24</sup> Bynner, J. and Parsons, S.(2001) *Health, well being and literacy; evidence from the 1970 British cohort study*, unpublished report, CEDC

<sup>25</sup> Scott, S. et al (2001) Financial cost of social exclusion: follow up study of antisocial children into adulthood. *British Medical Journal*, 323. Children with conduct disorders' crime costs were £51,224 up to age 28 (£46,550 more than a person with no conduct disorders.)

<sup>26</sup> 2006 survey of schools' SEN provision in two local authorities carried out by the authors: % of pupils with literacy difficulties also receiving SEN help for conduct disorder (BESD)

<sup>27</sup> Social Exclusion Unit (2002) *Reducing re-offending by ex-prisoners*. London: Social Exclusion Unit

<sup>28</sup> Costs based on 2005-6 data from HM Prison Service Annual Report and Accounts.



# Appendix 2

## Costs of SEN provision for pupils with literacy difficulties

The four schools chosen for this study are from two different local authorities and represent extreme ends of the scale of social deprivation.

### Summary: Secondary

Year group	Total costs School A £	No. of pupils involved	Total costs School B £	No. of pupils involved	Total costs Schools A and B	Total numbers Schools A and B	Average cost per pupil
7	27708	20	32226	51	59934	71	844
8	5720	9	5446	15	11166	24	465
9	4040	7	4163	12	8203	19	432
10	5260	18	6960	16	12220	34	359
11	13630	11	27743	18	41373	29	1426
Average total cost per pupil over their secondary career							3526

Range: £305 (group literacy intervention with a teaching assistant (TA), two hours per week, in Year 7 and 8) to £16,328 (3 hours per week 1-1 literacy support from a TA in year 7-9, one hour per week of behaviour support for one year, an alternative curriculum in Year 10 and a Year 11 full time college placement following exclusion from school)

A typical pathway for a pupil entering the school with very low literacy skills, based on the current pattern of provision in each year group in the schools visited, would be :

**In Year 7**, either a nurture group, or 1-1 or small group reading intervention plus a small amount of in-class support in other subjects, or a spelling group.

**In Year 8**, either continued reading intervention in a small group or 1-1, or a spelling group, and possibly support for behavioural needs.

**In Year 9**, either continued reading intervention or spelling support, and possibly support for behavioural needs.

**In Year 10**, spelling and coursework support whilst following traditional GCSE courses, or small-class teaching on an alternative curriculum.

**In Year 11**, coursework support, or small class teaching on an alternative curriculum, or possibly an early college placement or other alternative provision for disaffected pupils.

### Summary: Primary (Key Stage 2)

Year group	Total costs School A £	No. of pupils involved	Total costs School B £	No. of pupils involved	Total costs Schools A and B	Total numbers Schools A and B	Average cost per pupil
3	5458	11	2718	10	8176	21	389
4	8962	13	2711	8	11673	21	556
5	6508	7	2182	4	8690	11	790
6	3704	8	1264	3	4968	11	452
Average total cost per pupil over Key Stage 2							2187

Range: £171 ( one year of Additional Literacy Support in a group with a TA), to £3,362 (one year ALS in a group, plus group behaviour support with Learning Mentor in Year 3, 1-1 literacy teaching in Years 4 and 5, 1-1 behaviour support and continued literacy work with a TA in Year 6)

A typical pathway for a pupil entering Y3 with very low literacy skills, based on the current pattern of provision in each year group in the schools visited, would be some form of additional literacy support (variously in a group or 1-1) throughout Key Stage 2, in-class support from a TA in the literacy hour, plus behavioural interventions for some children.

## The provision: Secondary school A

School A is a large city secondary school with 1265 pupils on roll. It serves a mainly prosperous area. The proportion of pupils with special educational needs is in line with the national average.

	Group size	Costs per hour £	Hours per week	Weeks per year	Total annual cost £	Number of pupils served in year group
<b>Year 7</b>						
Read Write Inc	3	25	5	40	5000	
Spelling group	4	25	1	40	1000	
Individual literacy programme with TA	1	12	3	40	1440	
In class support for same child	1	12	3	40	1440	
Small nurture group class	12		Full timetable	40	18828*	
<b>Totals for Year 7</b>					<b>27708</b>	<b>20</b>
<b>Year 8</b>						
Read Write Inc	3 (Y8/9 group, combined gp size 5)	25	4	40	2400	
Spelling group	4	25	1	40	1000	
Individual literacy programme with TA	1	12	3	40	1440	
In class support for same child	1	12	1	40	480	
Counselling	1	25	1	8	200	
Art therapy	1	25	1	8	200	
<b>Totals for Year 8</b>					<b>5720</b>	<b>9</b>
<b>Year 9</b>						
Read Write Inc	2 (Y8/9 group, combined gp size 5)	25	4	40	1600	
Spelling group	4	25	1	40	1000	
Individual literacy programme with TA	1	12	3	40	1440	
<b>Totals for Year 9</b>					<b>4040</b>	<b>7</b>

**The provision: Secondary school A** continued

	Group size	Costs per hour £	Hours per week	Weeks per year	Total annual cost £	Number of pupils served in year group
<b>Year 10</b>						
Spelling group	4	25	1	40	1000	
Coursework support	4	25	1	40	1000	
Alternative curriculum: Media studies group	10	25	2.5	40	1630**	
Alternative curriculum: Key skills group	10	25	2.5	40	1630**	
<b>Totals for Year 10</b>					<b>5260</b>	<b>18</b>
<b>Year 11</b>						
Coursework support	4	25	1	40	1000	
Alternative curriculum: Leisure and tourism group	10	25	2.5	40	1630**	
Early college transfer placement	1		Full time placement	40	11000	
<b>Totals for Year 11</b>					<b>13630</b>	<b>11</b>

\*This represents the added cost (£1569 per pupil per year) of running a group of 12 at £3018 per pupil per year in place of a standard group of 25 pupils at £1449 per pupil per year

\*\* Also represents added costs related to group size reduced below the standard 25

## The provision: Secondary school B

School B is a smaller urban secondary school with 811 pupils on roll. It serves an area of considerable social deprivation. Entitlement to free school meals is more than twice the national average. The percentage of students with special educational needs is above average. In 2005 35 children (25% of the cohort) entered the school with below National Curriculum Level 3 attainment in English.

	Group size	Costs per hour £	Hours per week	Weeks per year	Total annual cost £	Number of pupils served in year group
<b>Year 7</b>						
Read Write Inc	11	30	4	40	2684**	
Read Write Inc in small nurture group class	16	30	4	40	1728**	
Read Write Inc	4	9.52	4	40	1523	
Read Write Inc	4	30	4	40	4800	
Read Write Inc	2	30	4	40	4800	
Read Write Inc	8	30	6	40	7200	
Read Write Inc	6	30	6	40	7200	
Support for behaviour and attendance	1	14.32	1 per child, 4 of above children involved		2291	
<b>Totals for Year 7</b>					<b>32226</b>	<b>51</b>
<b>Year 8</b>						
Read Write Inc	11	30	3	40	2013**	
Read Write Inc	4	9.52	3	40	1142	
Support for behaviour and attendance	1	14.32	1 per child, 4 of above children involved	40	2291	
<b>Totals for Year 8</b>					<b>5446</b>	<b>15</b>
<b>Year 9</b>						
Read Write Inc	12	30	3	40	1872**	
Support for behaviour and attendance	1	14.32	1 per child, 4 of above children involved		2291	
<b>Totals for Year 9</b>					<b>4163</b>	<b>12</b>

**The provision: Secondary school B** continued

	Group size	Costs per hour £	Hours per week	Weeks per year		
<b>Year 10</b>						
Alternative curriculum taught part-time in school	16	30	5	40	2160**	
Alternative curriculum taught part-time at FE college	16		10		4800 fee to college	
					<b>6960</b>	<b>16</b>
<b>Year 11</b>						
Alternative curriculum taught part-time in school	9	30	5	40	3843**	
Alternative curriculum taught part-time at FE college	9		10	40	4800 fee to college	
Early college placements	7		Full-time provision		12600	
Part-time placements in Pupil Referral Unit	2		Variable		6000	
					<b>27743</b>	<b>18</b>

\*\* Represents added costs related to group size reduced below the standard 25

## The provision: Primary school A

### Key Stage 2 provision for pupils with literacy difficulties (entering Key Stage 2 below National Curriculum Level 2 in English)

School A has 235 pupils on roll and serves an area of high social deprivation. The percentage of children eligible for free school meals is above the national average at 34%. The percentage of pupils with special educational needs is above average at 26.3%. The school also has high pupil mobility. Only pupils who attended the school in Key Stage 1, and might therefore have had access to Reading Recovery had it been available, have been included. Pupils joining the school over the course of Key Stage 2 have been excluded from the costings, as have all pupils whose need for literacy support is solely linked to EAL factors. Costs related to attendance support linked to children's literacy difficulties have not been included.

Actual 2005-6 costs have been used for the TAs and Learning Mentors providing the support. Costings for teacher time are average not actual, and are conservative. The hourly rate of £30 is based on a teacher at point 1 of the upper pay scale with two SEN points. Actual delivery was in some cases by teachers on the leadership scale, at a much higher hourly rate.

	Group size	Staffing costs per hour £	Hours per intervention per week	Number of pupils served in year group*	Total hours staffing per week	Weeks per year	Total annual cost £
<b>Year 3</b>							
1-1 Literacy skills work with TA	1	5.7	1.5	5	7.5	40	1710
Behaviour support with Learning Mentor	1	13.0	2.5	1	2.5	40	1300
ALS (Additional Literacy Support) plus extended writing	5	7.2	3.5	5	3.5	40	1008
PAT spelling	5	13.0	2.5	(5)	2.5	40	1300
'15 minutes a day' programme	5	7.0	0.5	(5)	0.5	40	140
<b>Totals for Year 3</b>				<b>11</b>			<b>5458</b>

The provision: Primary school A continued

	Group size	Staffing costs per hour £	Hours per intervention per week	Number of pupils served in year group*	Total hours staffing per week	Weeks per year	Total annual cost £
<b>Year 4</b>							
1-1 Literacy skills work with TA	1	5.7	3.5	3	10.5	40	2394
1-1 teaching on Reading Recovery principles	1	30	1.5	1 (1)	3	40	3600
Behaviour support with Learning Mentor	3	13	1	3	1	40	520
ALS plus extended writing	5	7.2	3.5	5	3.5	40	1008
PAT spelling	6	13	2.5	1(5)	2.5	40	1300
'15 minutes a day' programme	5	7.0	0.5	(5)	0.5	40	140
<b>Totals for Year 4</b>				<b>13</b>			<b>8962</b>
<b>Year 5</b>							
1-1 Literacy skills work with TA	6	5.7	1	6	6	40	1368
1-1 teaching on Reading Recovery principles	2	30	1.5	1(1)	3	40	3600
'15 minutes a day' programme	3	7.0	0.5	(3)	0.5	40	140
In-class support in literacy hour	Class	7.0	5	(7)	5	40	1400
<b>Totals for Year 5</b>				<b>7</b>			<b>6508</b>
<b>Year 6</b>							
1-1 Literacy skills work with TA	6	5.7	1	6	6	40	1368
Behaviour support with Learning Mentor	3	13	1.8	2(1)	1.8	40	936
In-class support in literacy hour	Class	7.0	5	(8)	5	40	1400
<b>Totals for Year 6</b>				<b>8</b>			<b>3704</b>

\* Some pupils receive more than one provision. Where this is the case, they appear in brackets in the 'Number of pupils served in the year group' column and are counted only once in the total number of children receiving provision.

### The provision: Primary School B

School B is a one-form entry primary school with 210 pupils on roll. 7.3% of pupils are eligible for free school meals, below the national average. Pupil mobility is low and pupils receiving support for literacy difficulties in Key Stage 2 have generally come through the school's own Key Stage 1 provision.

Average not actual staffing costs have been used here. The average TA costs are those provided to schools for 2004-5 year by the local authority (TAs at the top of the scale, at rate for nursery nurses working with children with SEN; teachers at point 1 of upper pay scale with 2 SEN points). 2.5% has been added to the final costs to inflate them to 2005-6 levels. Where provision has been delivered by a variable mixture of TA and teacher (item marked \*), actual costs have been taken direct from the school's provision map. This school organises its provision into ten-week blocks and costs on this basis, up to a maximum of thirty weeks. Costs are therefore conservative, as staff hourly costs are based on 40 weeks rather than 30.

	Group size	Staffing costs per hour £	Hours per intervention per week	Number of pupils served in year group**	Total hours staffing per week	Weeks per year	Total annual cost £
<b>Year 3</b>							
Keywords programme	2	9.13	1	4	2	30	548
Direct Phonics	Group or 1-1	Variable	1.5	(2)	Variable	30	1237*
ALS	4	9.13	2.5	4	2.5	30	685
Out of sight keyword programme	2	9.13	1	2	1	10	91
Booster programme	2	9.13	0.5	(2)	0.5	20	91
<b>Totals for Year 3</b>				<b>10</b>			<b>2652</b>
<b>Total cost inflated by 2.5%</b>							<b>2718</b>
<b>Year 4</b>							
Acceleread, Acelewrite	1	Variable	1.5	3	Variable	10	682*
Catch Up	1	Variable	1	3	3	10	455*
Direct Phonics	2	Variable	1.5	2	1.5	30	960*
Acceleread, Acelewrite	1	9.13	1.5	(2)	3.0	20	548*
<b>Totals for Year 4</b>				<b>8</b>			<b>2645</b>
<b>Total cost inflated by 2.5%</b>							<b>2711</b>
<b>Year 5</b>							
Acceleread, Acelewrite	1	Variable	1.5	4	6	10	817*
Acceleread, Acelewrite	1	Variable	1.5	(3)	4.5	20	1365*
<b>Totals for Year 5</b>				<b>4</b>			<b>2182</b>
<b>Total cost inflated by 2.5%</b>							<b>2237</b>

\* \*Some pupils receive more than one provision. Where this is the case, they appear in brackets in the 'Number of pupils served in the year group' column and are counted only once in the total number of children receiving provision.



The provision: Primary School B continued

	Group size	Staffing costs per hour £	Hours per intervention per week	Number of pupils served in year group	Total hours staffing per week	Weeks per year	Total annual cost £
<b>Year 6</b>							
Direct Phonics	1	9.13	2	1	2	30	548
Acceleread, Accelewrite	1	9.13	1.5	1	1.5	10	137
Acceleread, Accelewrite	1	9.13	1.5	1 (1)	3	20	548
<b>Totals for Year 6</b>				<b>3</b>			<b>1233</b>
<b>Total cost inflated by 2.5%</b>							<b>1264</b>

# Appendix 3

## Costs of Reading Recovery

**Table 1: Costs at local authority (LA) level over five years, including year of training:**

Item	Start up costs	£	£	£
1	Essential: Training course Core texts Teacher Leader's time during full time participation in training course (salary @£45K plus 23% on-costs)	9,000 50 55,350	64,400	
2	May be needed: Costs of attendance in London Conversion of centre Children's books	5,000 10,000 200	15,200	
3	Start up costs		79,600	79,600
4	Running costs		Variable	
5	0.5 Teacher Leader (TL) time = £27,675 per year over four years	110,700		
6	Service Level Agreement with Reading Recovery National Network (Quality assurance and ongoing professional development) @ £5,500 per year x 4	22,000		
7	Total running costs over next four years		132,700	132,700
8	Gross costs for LA over five years			212,300 less
9	Income from schools for teacher training @ £2,500 per school x 12 schools per year x 4 years	120,000	120,000	120,000
10	Net costs for LA over five years			92,300

**Table 2: Costs at school level over four years:**

Item	Start up costs	£	£	£
11	Essential: Training course Core texts	2,500 30		
12	May be needed: Children's books Magnetic whiteboard and letters	200 100		
13	Maximum start-up costs		2,830	
14	Running costs		Variable	
15	0.5 teacher time for 1-1 teaching = £20,000 per year over four years	80,000	80,000	
16	Total cost to the school over four years			82,830
17	8 - 10 children served per 0.5 teacher time per year, average 9 children per year x 4yrs = 36 children			÷36
18	Cost to the school per child			2,300

**Table 3: Combined school and LA costs per child**

Item	Start up costs	£	£	£
19	LA costs per child (Net costs ÷ number children served over 5 years)	92,350 ÷ 1,034	89	
20	School costs per child		2,300	
21	Total cost per child		£2,389	£2,389

**Table 4: Number of children served in an LA over 5 years**

Item	implementation	children served
22	Year 1 1 TL in training	4
23	Year 2 12 teachers @ 8 children 1 TL @ 4 children	96 4
24	Year 3 24 teachers @ 9 children 1 TL @ 4 children	216 4
25	Year 4 36 teachers @ 9 children 1 TL @ 4 children	324 4
26	Year 5 42 teachers @ 9 children 1 TL @ 4 children	378 4
27	Total number of children served in LA over 5 years	1,034

Notes:

- Item 2: The conversion of the centre varies enormously, from nil, where a suitable existing facility can be used, to a complete build from scratch. The main requirement is a one-way screen, the installation of which costs around £5,000.
- Item 6: Quality Assurance and ongoing professional development includes Service Level Agreement @ £5,000 per LA per annum to cover costs of National Coordination, monitoring and reporting, support for LA managers, Trainer support visits to TLs, and professional input to the TL one-week annual professional development conference; £500 allowed for TL costs in attending the TL conference.
- Items 9 and 11: The costs of the course have been worked out to include all the TLs overheads including office costs, travel to school visits etc. Some LAs do not charge schools for the training course, in which case item 1 would not be a cost, but item 18 would not be deductible from the LA costs.
- Item 12: In many schools this would not be a cost as the materials are standard equipment in the school.
- Item 15: The figure of £ 20,000 p.a. (including on-costs) for a 0.5 FTE teacher represents the mid-point in a range that runs from a minimum of £13,738 for a teacher on the main salary scale at point M3 with no London allowances, through £18,108 for a teacher at the top of the main scale (M6) with 2 SEN points and no London allowances, through to £23,933 for teachers who are at the top of the upper pay scale and have maximum London allowances, or more for those with additional Teaching and Learning responsibilities.
- Item 17: The number of children served by a teacher in a year is sensitive to a number of factors, but for a teacher working 0.5 time the range is 8-10 children. In a context of full implementation, teachers can reach 10 or even 12, thereby considerably reducing unit costs.

# Appendix 4

## Case 1: Excluding costs of maintaining Statements of special educational needs; lower-bound assumptions on costs of crime

Description of revenue flow	Note	Number	Differential
<b>Costs of intervention</b>		<b>38,700</b>	
<b>Cost saving as result of intervention</b>			
Special needs support - literacy and behaviour	KS2	30,573	100.0%
Special needs support - literacy and behaviour	KS3 & 4	30,573	100.0%
Permanent exclusions		122	0.4%
Educational psychologist time		13,758	45.0%
Truancy		2,140	7.0%
Employment - tax and NI revenue	Male	20,856	2.5 years
	Female	9,717	2.7 years
Employment - cost of unemployment benefits	Male only	20,856	2.5 years
NEET (Not in Education, Employment or Training) social costs	Male	5,005	24.0%
	Female	2,332	24.0%
Depression	Male	2,086	10.0%
	Female	2,526	26.0%
Obesity	Male	834	4.0%
	Female	486	5.0%
Crime	Male	2,711	13.0%

### Cost notes:

- 1 No indexation - 2006 prices
- 2 Earnings indexed using average earnings index from month 4, 2003 to month 6, 2006
- 3 Costs indexed from June 1993 to June 2006 using RPI (RP02)
- 4 Obesity costs indexed from April 1998 to June 2006 using RPI (RP02)
- 5 Crime costs indexed from July 2001 to June 2006 using RPI (RP02)
- 6 Costs indexed from 2002 (assumed June) to June 2006 using RPI (RP02)

Annual or One-off Amount £	Cost note	Present Value £
£2,389		£92,454,300
£2,187	1	68,959,959
£3,526	1	122,615,417
£10,555	1	1,572,765
£255	1	3,759,777
£1,675	1	4,368,153
£30,248	2	498,515,202
£17,014	2	129,914,877
£6,896	1	171,554,800
£5,802	6	75,851,363
£10,072	6	111,558,406
£177	3	8,891,787
£177	3	10,771,188
£446	4	8,950,672
£446	4	5,212,749
£53,319	5	147,079,461

**Present value of savings £1,369,576,578**

**For every £1 spent on intervention £14.81 is saved in today's money**

**For each intervention, which costs £2,389 the sum of £35,390 is saved in today's money**

**Total cost / lost revenue per person to age 37 without intervention £44,797 in today's money**

## Case 2: including costs of maintaining a Statement: upper-bound assumptions on costs of crime

Description of revenue flow	Note	Number	Differential
<b>Costs of intervention</b>		<b>38,700</b>	
<b>Cost saving as result of intervention</b>			
Special needs support - literacy and behaviour	KS2	30,573	100.0%
Special needs support - literacy and behaviour	KS3 & 4	30,573	100.0%
Costs of maintaining SEN statement- secondary education		9,478	31.0%
Permanent exclusions		122	0.4%
Educational psychologist time		13,758	45.0%
Truancy		2,140	7.0%
Employment - tax and NI revenue	Male	20,856	2.5 years
	Female	9,717	2.7 years
Employment- unemployment benefits	Male only	20,856	2.5 years
NEET social costs	Male	5,005	24.0%
	Female	2,332	24.0%
Depression	Male	2,086	10.0%
	Female	2,526	26.0%
Obesity	Male	834	4.0%
	Female	486	5.0%
Prison costs	Male	Variable	25%

### Cost notes:

- 1 No indexation - 2006 prices
- 2 Earnings indexed using average earnings index from month 4, 2003
- 3 Costs indexed from June 1993 to June 2006 using RPI (RP02)
- 4 Obesity costs indexed from April 1998 to June 2006 using RPI
- 5 Costs indexed from 2002 (assumed June) to June 2006 using RPI (RP02)

Annual or One-off Amount £	Cost note	Present Value £
£2,389		£92,454,300
£2,187	1	68,959,959
£3,526	1	122,615,417
£1,821	1	98,153,189
£10,555	1	1,572,765
£255	1	3,759,777
£1,675	1	4,368,153
£30,248	2	498,515,202
£17,014	2	129,914,877
£6,896	1	171,554,800
£5,802	5	75,851,363
£10,072	5	111,558,406
£177	3	8,891,787
£177	3	10,771,188
£446	4	8,950,672
£446	4	5,212,749
Variable	1	302,724,165

**Present value of savings £1,623,374,471**

**For every £1 spent on intervention £17.56 is saved in today's money**

**For each intervention, which costs £2,389 the sum of £41,948 is saved in today's money**

**Total cost per person to age 37 without intervention is £53,098 in today's money**

# Appendix 5

## Authors

This report was prepared for the KPMG Foundation by Jean Gross, Director of *Every Child A Reader*, and members of the KPMG Education Advisory Team.

The KPMG Education Advisory Team is a fifty-strong group who work within KPMG's Government Advisory section. Staff have a broad range of experience in the education sector, ranging from senior management experience in schools to senior management experience in colleges, universities and funding bodies such as the Learning and Skills Council. Their experience includes curriculum, finance, estates and student data issues. The team covers a wide range of assignments, from assisting individual providers with significant projects such as merger or estates strategies through to larger-scale reviews for the Department for Education and Skills, the Learning and Skills Council or the Higher Education Funding Council.

The project team for this report included:

### **Derrick Jones**

A Director in the Education Advisory team, Derrick has previously held a number of posts in further education including college Vice-Principal (Resources) and Deputy Chief Executive.

### **Martin Raby**

A qualified accountant, Martin joined KPMG in 2005, having previously been a college Vice-Principal and a university Finance Director.

### **Ted Tolfree**

Ted joined KPMG in 2004 from DTZ Pineda Consulting where he worked as an economist. Ted specialises in undertaking demand assessments and socio-economic analysis.

### **Jean Gross**

Jean is the Director of *Every Child A Reader*. Prior to that she worked for the government's National Literacy Strategy and was Senior Director within the Primary National Strategy, responsible for its work on overcoming barriers to learning and achievement. A former teacher, university lecturer, educational psychologist and Head of Children's Services in a large urban local authority, Jean is a national expert on children's special educational needs and behaviour issues. She is the author of numerous research articles and books on special needs and literacy issues including *Special educational needs in the primary school: a practical guide* (Open University Press) and *Special educational needs and school improvement* (David Fulton).



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