



Report to schools:

Longitudinal study of literacy development from 2003-2009,
following 1607 pupils through Key Stage 1

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Susan Case
Dave Philpot
John Walker

www.sounds-write.co.uk

We would like to thank the staff of the following schools for taking the time and trouble to test their Key Stage One pupils over several years in order to share their results with us so that this study could be carried out.

Aspley Guise Lower School, Bedfordshire

Aspull Primary, Aspull, Greater Manchester

Castle Hill C of E Primary, Hindley, Greater Manchester

Dame Janet Community Infants, Ramsgate, Kent

Ellington Infants, Margate, Kent

Newington Community Primary, Ramsgate, Kent

Palm Bay Primary, Margate, Kent

Priory Infants, Ramsgate, Kent

Ridgmont Lower School, Bedford

Sacred Heart Catholic Primary, Leigh, Greater Manchester

St Aidan's Catholic Primary, Wigan, Greater Manchester

St George's C of E Primary, Atherton, Greater Manchester

St Joseph's Catholic Primary, Leigh, Greater Manchester

St Jude's Catholic Primary, Wigan, Greater Manchester

St Mary's C of E Primary, Lowton, Warrington

St Paul's C of E Primary, Westleigh, Greater Manchester

St Thomas Aquinas' Catholic Primary, Bletchley, Milton Keynes

St William's Catholic Primary, Ince, Greater Manchester

South Avenue Infants, Sittingbourne, Kent

Swalecliffe Community Primary, Whitstable, Kent

Tyldesley Primary, Greater Manchester

Wincheap Primary, Canterbury, Kent

Wootton Lower School, Bedford

Wyvern First School, Milton Keynes

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Introduction

The Sounds~Write linguistic phonic teaching programme was conceived and written in 2002/3. An essential component of our thinking about literacy tuition is that all teachers of literacy require high quality training. This is needed to help dispel the many myths and inaccuracies pervading teaching practices that stem from a variety of sources including: personal educational experiences of schooling from childhood; BEd and Teaching Certificate courses; Department of Education publications up to and including Letters & Sounds; and local authority advisers and Ofsted inspectors. Sounds~Write has been providing high quality training in literacy tuition since 2003, during which time we have run more than 300 courses, attended by over 6500 teachers, teaching assistants, educational psychologists and other education professionals.

Central to our thinking about literacy tuition is that all education professionals need accurate feedback about the effectiveness of teaching ideas and programmes. To provide just such feedback, we determined from the outset to encourage schools to collect data on the performance of their Sounds~Write taught pupils. We found that, like ourselves, most teachers are concerned about the lack of good evidence to underpin their understanding of **what actually works** for classroom tuition of literacy. Consequently many schools containing scores of individual classroom teachers trained in Sounds~Write have been willing to test their pupils and, every year, have been sending their data to us to evaluate the progress of those pupils.

At the beginning of our data collection procedure we had in mind the goal of trying to collect information on a pupil sample equivalent in size to 50 full classes of 30 pupils passing through Key Stage One. The data collected in June this year (2009) has completed this goal, enabling us to report on the progress of **1607 individual pupils** for whom we have spelling test results obtained during May to June at the ends of each of their YR, Y1 and Y2 school years.

We hope that you will find the presentation and discussion of these results both interesting and illuminating. It would be useful to compare the results of this research with similar information collected about other literacy tuition programmes in use throughout UK schools, but we are not aware that any such data exists. We feel that literacy tuition practices need to be evidence-based and evidence-informed and that it is only on this basis that classroom practitioners can have confidence in the effectiveness of their approach to the teaching of literacy.

In our annual reports we have previously written about our thoughts on how to teach literacy effectively to pupils and then how to measure the progress they are making. This information we have placed within Appendices A, B and C of this report (pages 20 to 23) for the benefit of new readers who, at this point, might like to read them before proceeding further.

Overview of main results

This study has produced an enormous amount of data. To avoid the reader drowning in figures, we are initially presenting the overall results in the form of a simple visual picture where each pupil in the study is represented by a single dot.

The box on the left shows the expected outcome for 1607 pupils at the end of Year Two based on the norms of Young's *Parallel Spelling Test** used to evaluate their progress. The box on the right shows the actual results of the 1607 pupils in the study taught by staff trained in Sounds~Write.



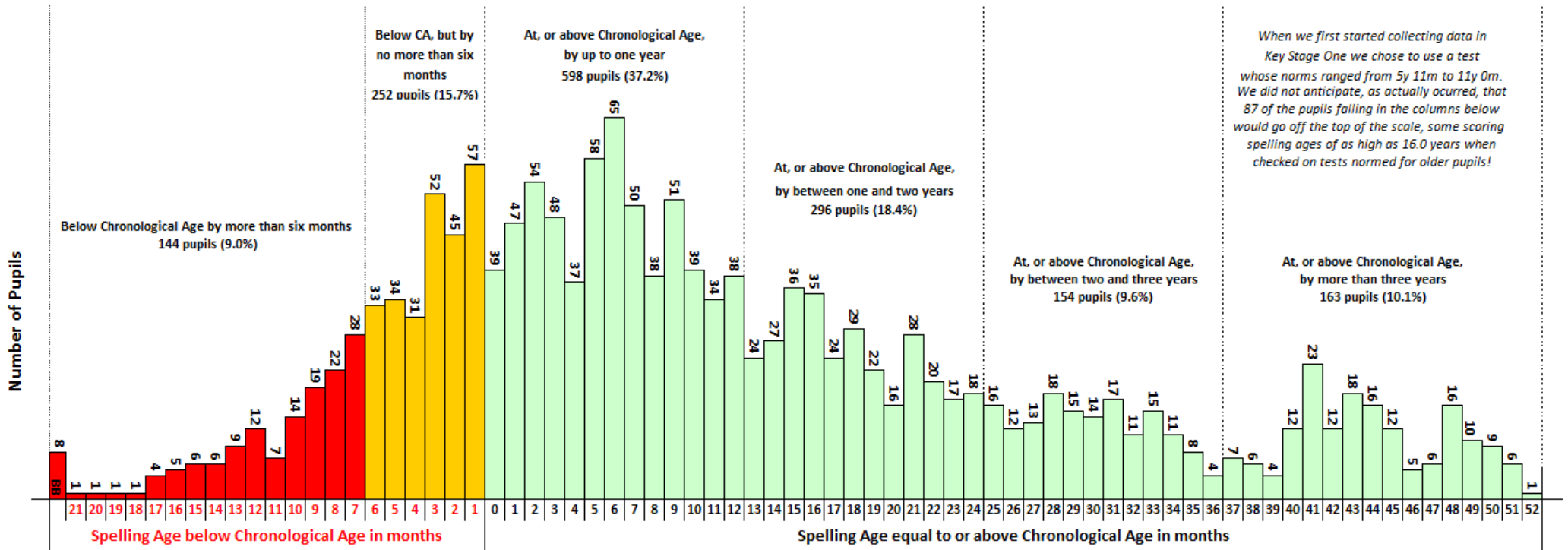
Each green dot < ● > represents a pupil scoring **at or above their own chronological age level**, whilst each orange dot < ● > represents a pupil scoring **below their own chronological age level, but by no more than 6 months**. Each red dot < ● > represents a pupil scoring **more than 6 months below their own chronological age level**. By the end of Key Stage One 413 pupils (25.7%) who traditionally would have been expected to score below their chronological ages have scored above them.

Including the pupils who scored below, but within 6 months of their actual age level (252 pupils), a grand total of 1463 out of the 1607 will be moving up to Key Stage Two with basic literacy skills at an age appropriate level, or above. This amounts to 91% of the children in the study.

The data represents an improvement in the literacy functioning ability of the whole cohort: all pupils show improvement when compared with the progress made in the past by those pupils on whom the test was originally standardised. (This discussion is continued on page 4 to enable the chart on page 3 to be seen in juxtaposition with the distribution of Sounds~Write taught pupils results shown in the right-hand box above.)

* See Appendix C, p22, for a discussion of the choice of this test to provide information on progress in literacy.

Spread of Spelling Test results achieved by 1607 pupils taught throughout Key Stage One by Sounds~Write trained teachers and learning support assistants



The average chronological age of these 1607 pupils when tested in the Summer Term of Year Two was 7 years 3 months.

Note: BB in the first column above stands for Below Baseline. Eight pupils failed to achieve the minimum Spelling Age of 5y 11m that can be scored on Young’s Parallel Spelling Tests A. Four of these eight pupils had still not reached their seventh birthday when tested in the summer term of Y2.

Discussion continued from page 2.

We would like to point out here that much, if not most research, in the subject of English literacy skills acquisition is short term, looking for effects on pupils based upon interventions of less than six months. These effects often seem mysteriously to disappear over the following twelve months. Results are also frequently presented as average scores that can mask the fact that the positive effects claimed were achieved solely by the pupils at the upper end of the literacy ability range, leaving those functioning at the lower end no better off - and additionally even further behind those that are doing well. Sounds~Write's main goal has, from the outset, been the improvement and acceleration of the development of literacy skills for **ALL** pupils, and tracking this large sample of children individually through Key Stage One has demonstrated that this goal has been achieved.

Owing to the relatively poor performance of boys, gender differences in speed of acquisition of literacy skills are a continuing problem for the National Literacy Strategy. With the linguistic phonic teaching approach used in this study, this has not proved to be the case. For those pupils developmentally ready to engage with formal literacy tuition at the time of school entry, the performance of the boys and girls is very similar with girls pulling ahead over the three years by only about one and a half months at the end of Year Two (*a difference of no pedagogical consequence*). It is, however, apparent from the data that about 18.6% of pupils were not, in our opinion, really ready to intellectually engage with formal tuition when starting their Reception Year. More of these pupils were boys than girls, as would be predicted from basic knowledge about gender differences in early development, particularly in the areas of speech and language. The data shows almost twice as many boys as girls were not ready to benefit fully from the formal tuition of literacy in Reception (the actual figures being 195 boys as against 104 girls).

The overall progress of pupils by the end of each year group is shown on the next three pages, followed by a set of bar charts drawn to illustrate the distribution of the pupils' progress through Key Stage One. The normal distribution of results traditionally expected for a group of this size is included underneath the individual year group charts for ease of comparison.

Reception Year Data¹

Table 1: Reception Year – overall Spelling Age scores

1	2	3	For pupils in Column 3 only
Number of pupils tested ²	Number not reaching a Spelling Age of 5y 11m ³	Number who did score a Spelling Age of 5y 11m or above ³	Average amount in months that pupils' Spelling Ages were above their chronological ages
1607	299	1308	14.8 months

*For those 1308 pupils that did score on the test, their average Spelling Age was **6y 6.5m** at an average Chronological Age of **5y 3.8m**.*

Table 2: Reception Year – spread of Spelling Age scores in 12-monthly intervals

Number of pupils tested	Spelling Age below test baseline of 5y 11m	Spelling Age above Chronological Age in yearly intervals			
		1 to 12 months	13 to 24 months	25 to 36 months	Over 36 months
1607	299	468	788	51	1

Table 3: Reception Year – Spelling Age scores by Gender

BOYS				GIRLS			
Number of boys tested	Number of boys who did not score a Spelling Age of 5y 11m or above	Number of boys who did score a Spelling Age of 5y 11m or above	Average SA-CA in months for the 610 boys in the previous column	Number of girls tested	Number of girls who did not score a Spelling Age of 5y 11m or above	Number of girls who did score a Spelling Age of 5y 11m or above	Average SA-CA in months for the 698 girls in the previous column
805	195	610	14.5	802	104	698	15.0

¹*This data was provided by 24 state primary schools, 5 Church of England, 6 Catholic and 13 non-denominational. 11 of these schools were situated in the north west of Greater Manchester within Wigan LA, 5 were in the Milton Keynes area and the other 8 from the county of Kent.*

²*2012 pupils were originally tested at the end of their Reception Year, of whom 1607 were still available within the same school to be tested two years later at the end of Year Two. All pupils within the study were tested three times – at the end of each of their three Key Stage One years. Loss of pupils from the study primarily occurred due to families moving away and transferring their children to other schools. Some pupils were lost due to illness and family holidays at the time the testing was carried out. Several classes had staff changes involving an incoming teacher untrained in the Sounds~Write programme and so had to be removed from the study.*

³*Historically pupils were expected to make very little or no progress at all with spelling during their Reception Year and tests were standardised accordingly. The Parallel Spelling Tests used in this study have a Basal Age (lowest possible score) of 5 years 11 months. See Appendix C for a broader discussion on the issue of testing literacy development.*

Year One Data

Table 4: Year One – overall Spelling Age scores

1	2	3	Average amount in months that the Spelling Ages of the 1565 pupils in column 3 were above their Chronological Ages
Number of pupils tested	Number not reaching a Spelling Age of 5y 11m	Number who did score a Spelling Age of 5y 11m or above	
1607	43	1564	10.9 months

For those 1564 pupils that did score on the test, their average Spelling Age was **7y 2.3m** at an average Chronological Age of **6y 3.4m**.

Table 5: Year One – spread of Spelling Age scores in 12-monthly intervals

Number of pupils tested	Spelling Age below test baseline	Spelling Age below /above Chronological Age in yearly intervals				
		0 to 12 months	0 to 12 months	13 to 24 months	25 to 36 months	Over 36 months
1607	43	138.5*	876.5*	414	98	37

* The spread of achievement is presented in this table in 12-monthly intervals because 12 months is the generally accepted unit of standard deviation employed in educational assessments. This facilitates straightforward comparison with the normal distribution curve. It is standard practice to allocate half of the pupils whose test scores exactly match their chronological ages to each of the two columns asterisked above. If this number of pupils is odd, **as it is in this particular case where 57 pupils' scores exactly matched their chronological ages** (34 boys & 17 girls), then the above situation arises with each column including a 'statistical' half child! [For those readers who want to double check all the various calculations for themselves, the Y2 figures for pupils whose scores exactly matched their chronological ages are 20 boys & 19 girls = 39 pupils altogether.]

Table 6: Year One – Spelling Age scores by Gender

BOYS				GIRLS			
Number of boys tested	Number of boys who did not score a Spelling Age of 5y 11m or above	Number of boys who did score a Spelling Age of 5y 11m or above	Average SA-CA in months for the 775 boys in the previous column	Number of girls tested	Number of girls who did not score a Spelling Age of 5y 11m or above	Number of girls who did score a Spelling Age of 5y 11m or above	Average SA-CA in months for the 789 girls in the previous column
805	30	775	9.8	802	13	789	12.0

Year Two Data

Table 7: Year Two – overall Spelling Age scores

1	2	3	For pupils in Column 3 only
Number of pupils tested	Number not reaching a Spelling Age of 5y 11m	Number who did score a Spelling Age of 5y 11m or above	Average amount in months that their Spelling Ages were above their chronological ages
1607	8	1599	11.5 months

*For those 1599 pupils that did score on the test, their average Spelling Age was **8y 2.7m** at an average Chronological Age of **7y 4.3m**.*

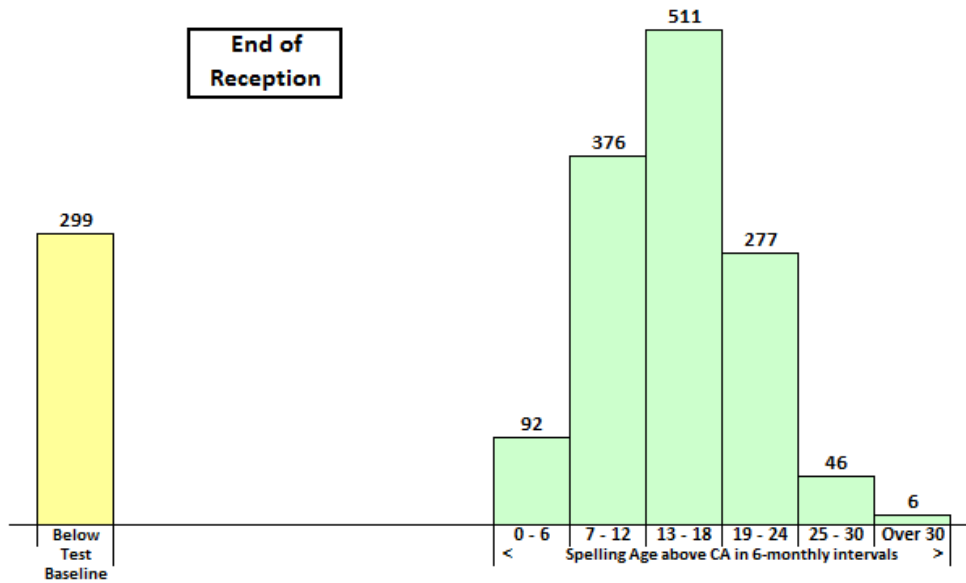
Table 8: Year Two – spread of Spelling Age scores in 12-monthly intervals

Number of pupils tested	Spelling Age below test baseline	Spelling Age below /above Chronological Age in yearly intervals					
		Over 13 months	0 to 12 months	0 to 12 months	13 to 24 months	25 to 36 months	Over 36 months
1607	8	34	373.5	578.5	296	154	163

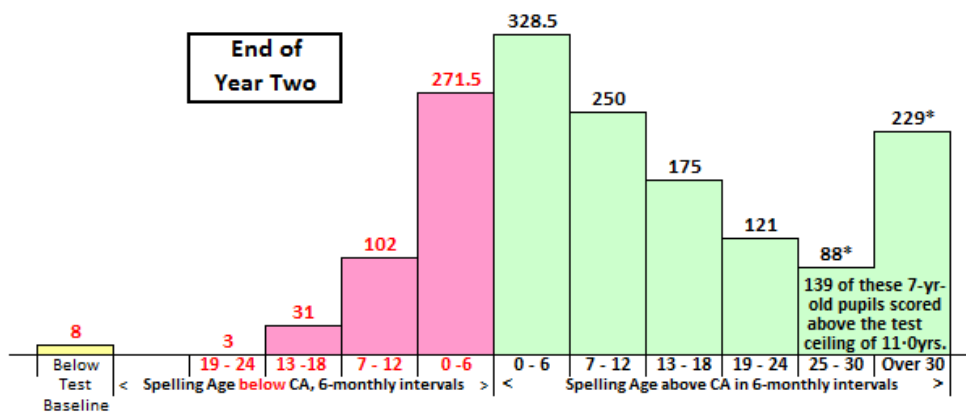
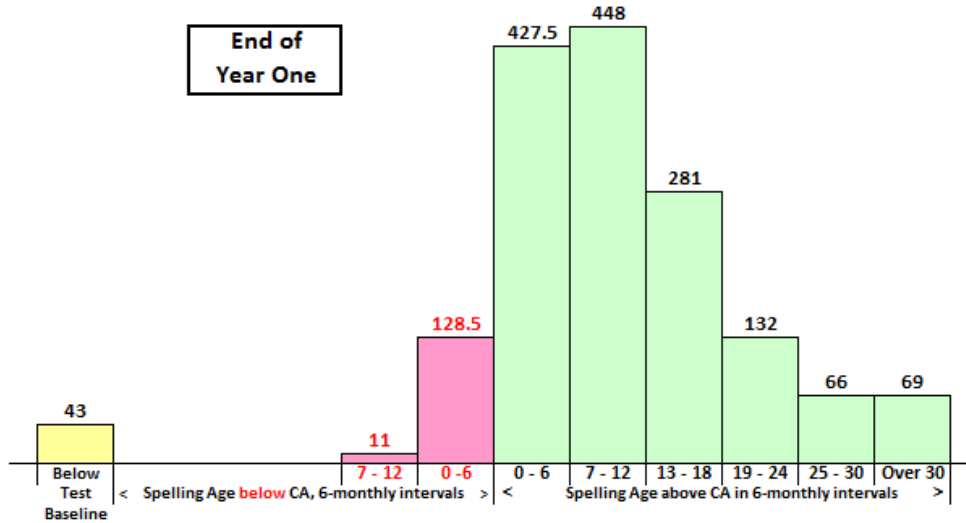
Table 9: Year Two – Spelling Age scores by Gender

BOYS				GIRLS			
Number of boys tested	Number of boys who did not score a Spelling Age of 5y11m or above	Number of boys who did score a Spelling Age of 5y 11m or above	Average SA-CA in months for the 798 boys in the previous column	Number of girls tested	Number of girls who did not score a Spelling Age of 5y11m or above	Number of girls who did score a Spelling Age of 5y 11m or above	Average SA-CA in months for the 801 girls in the previous column
805	7	798	10.1	802	1	801	12.8
Average SA=8y 1.3m; Average CA = 7y 3.2m; Diff = 10.1m				Average SA=8y 4.1m; Average CA = 7y 3.3m; Diff = 12.8m			
Boy:Girl difference = 2.7m (which reduces to 2.6m after age adjustment)							

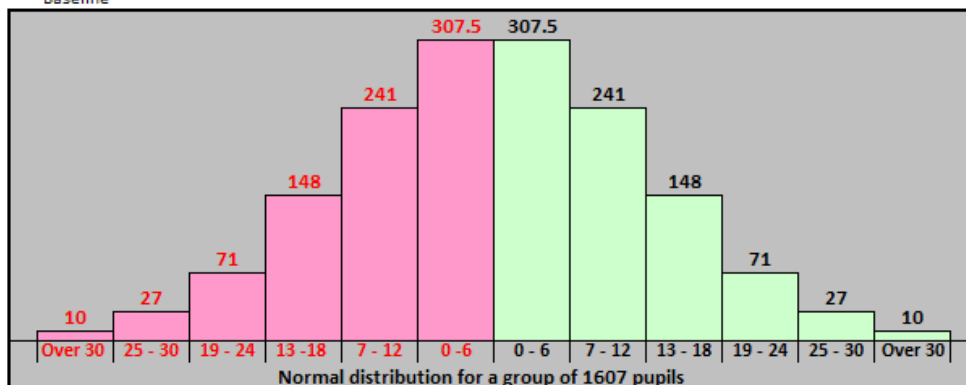
Sounds~Write taught pupils: Progress through Key Stage One (Sample size 1607 pupils)



[See data Table 13 for these charts on p.13]



* *The Parallel Spelling Test A used in this study has a Ceiling Age (highest score) of 11·0 years. See Appendix C, p.22 for a broader discussion on the issue of testing literacy development.*



Discussion

By the end of their Reception Year 1308 of the 1607 pupils in the study were able to score on the Parallel Spelling Test (81.4% of them). As the lowest achievable score on this test was 5y 11m and all the Reception pupils were actually younger than this, these results clearly surpass previous expectations for such young children.

Furthermore, this initial good start is maintained throughout the following two years leading to an average Spelling Age just over 14 months ahead of chronological age being achieved by the end of Year Two. *[For those interested in the fact that the average gain in Spelling Age was measured at only 9.5 months in Year One and 13.6 months in Year Two, we think this just reflects a test artefact built in by the accomplishments of the pupils in the original standardisation sample who were taught their literacy by a variety of conflicting approaches.]*

The following table shows a synopsis/overview of the literacy levels achieved by the Sounds~Write taught pupils at the end of Key Stage One.

Table 10: Literacy functioning levels at the end of Year Two

Literacy functioning level	Boys		Girls		All	
	Total	Percentage	Total	Percentage	Total	Percentage
At or above CA*	566	70.3%	645	80.4%	1211	75.4%
Below CA by between 1 and 6 months	152	18.9%	100	12.5%	252	15.7%
Below CA by between 7 and 12 months	60	7.5%	42	5.2%	102	6.3%
Below CA by more than 12 months	27	3.4%	15	1.9%	42	2.6%
(*CA = Chronological Age) Totals =	805		802		1607	

Given that the Sounds~Write linguistic phonic approach is being used, the implications we can draw from the figures are that:

- most pupils will move on to Key Stage Two with reading and spelling skills that are age-appropriate;
- 91% (1211+ 252 – *the two shaded cells in Table 10 above*) of the sample are functioning in literacy at a level no more than six months below Chronological Age and can therefore be expected to tackle age-appropriate reading and writing tasks in Year Three;
- for a full class of 30 pupils, on average 27 or 28 of them will go on to Y3 with age-appropriate literacy skills and no more than 2 or 3 would be functioning at more than six months below age level.

In writing Sounds~Write we wanted to produce **a teaching programme that would improve and accelerate the development of literacy skills in all pupils**. We think that ***there is a correct way to teach literacy***, not a variety of approaches to be varied according to the different rates at which individual pupils may appear to be learning. So, for us, one measure of success of the programme is the demonstration that **ALL** pupils being taught by linguistic phonic principles benefit from their tuition. Literacy skill development within the population is expected to be normally distributed, i.e. to follow the curve shown below in figure (i).

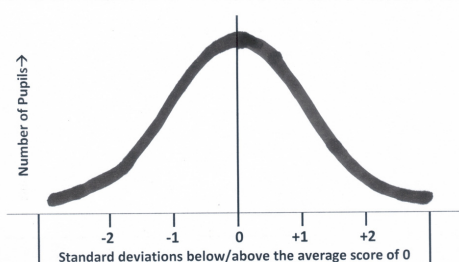


figure (i)

In a normal distribution most pupils score around the average (*shown as 0 in the diagram*) and the further the graph moves away from the average, both above and below it, the fewer pupils are found. In terms of measurement of skills, half of the pupils will be above the average and half below.

For the schools involved in this study to achieve the aim of improving the skills of ALL pupils, the whole of the normal distribution curve in figure (i) would need to be 'pushed' to the right and end up looking something like the distribution in figure (ii) below.

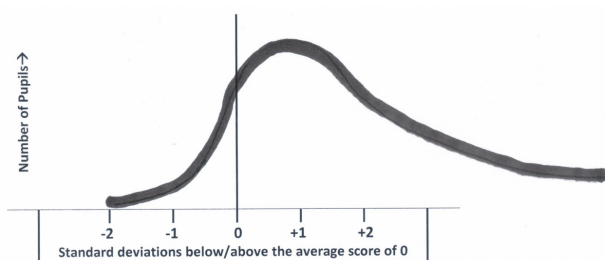


figure (ii)

What is implied in this graph is that: the average score has been moved to the right (*i.e. increased*): the curve is steeper on the left hand side (*number of pupils scoring below average*) and extends much further on the right hand side (*pupils scoring above average*).

As can be clearly seen from the charts on page 8, Sounds~Write taught pupils did achieve a distribution of the type shown in figure (ii). See note below.

To keep an objective view when interpreting the results of this study, the following points should be kept in mind:

- 1) Given appropriate teaching, the average progress made by pupils should correspond to their actual ages. The fact that these pupils have largely scored Spelling Ages in advance of their chronological ages is a reflection of the relatively limited progress being made by those pupils on whom the test was originally constructed and whose performance on it generated the currently available norms.
- 2) Were we now to construct a new test based on the assumption that pupils were being taught in accordance with our understanding of the way and speed at which phonic understanding develops, two things would change compared to previous test development.
 - i) For Key Stage One pupils the target words to be tested would (*appropriately*) contain only spellings of sounds that mirrored the teaching sequence recommended.
 - ii) High frequency words that are encountered before pupils are taught about the complexities of encoding and decoding their particular sound-spelling correspondences, *if tested*, would be scored and considered separately from the phonically regular words being tested.

The above points would obviously only apply to testing pupils during the period they are being taught literacy, with the purpose of the testing being to try to find out how successfully they were internalising the content of their tuition programme. Once independent adult levels of literacy are attained there would no longer be any purpose to such testing.

Learning Trajectories

Mastery of literacy is underpinned by several factors: understanding the concepts involved for the way in which the English alphabet code works; mastering the skills – blending, segmenting and phoneme manipulation – which correlate to proficiency in learning to read and spell; and the memorisation of the various symbols involved. (This entails teaching not just the individual letters of the alphabet, but also the ways in which they are combined to represent speech sounds as, for example, in the words **school**, **high**, **pear** & **eight**.)

At different times within the learning process, individual pupils will sometimes take longer to understand some concepts than others, or to memorise some particular symbols and the sound(s) they can represent. Progress is therefore often not a smooth ride, and within any class at any time some pupils will appear to be moving ahead much faster than others. Our testing has sampled progress at the ends of three school years and it is quite clear that progress over the course of an academic year for many pupils can vary considerably from one year to the next. In Table 11 below we show the figures for 10 pupils that demonstrate the extent of variability in rate of progress

Note: The right hand tail of the **End of Year Two** chart on page 8 is not as long as that shown in figure (ii) because those children achieving Spelling Ages above 11 years and as high as 16 years were not accurately measured by the test used which has a *ceiling score* [**maximum achievable on the test**] of only 11·0 years. These pupils were therefore packed into the final two columns, rather than being shown much further to the right. When we started this research we did not anticipate finding large numbers of pupils exceeding a Spelling Age of 11·0 years by the end of Key Stage One.

shown by many pupils in the study – and similar results would appear for the majority of the other 1597 pupils for whom we have data.

Table 11: Some examples of individual pupils' literacy learning trajectories

Pupil	Spelling Ages in years.months at the			Age when tested at end of Year Two
	end of Reception	end of Year One	end of Year Two	
1	below 5.11	5.11	7.0	6.10
2	below 5.11	7.0	9.1	7.3
3	below 5.11	6.0	6.6	7.0
4	5.11	6.6	7.0	6.9
5	6.2	7.1	7.4	7.1
6	6.4	7.6	9.1	6.11
7	6.7	9.0	Over 11.0	7.5
8	6.7	7.1	8.6	7.1
9	6.8	7.5	9.8	8.1
10	6.7	7.0	7.10	7.7

The figures above demonstrate the problem faced by all primary schools in teaching classes of children whose progress varies considerably, not only between one child and another, but for individual children, between one school year and the next.

To further illustrate the point we are making we now present Table 12, showing figures of outcomes at the end of Year Two compared to those at the end of Reception.

Table 12: Comparing progress by the ends of YR and Y2

Spelling Age levels achieved at the end of Key Stage One	Those 299 pupils who did not score on the spelling test at the end of Reception		Those 1308 pupils who did score on the spelling test at the end of Reception	
	Number	Percentage	Number	Percentage
Pupils who scored <i>more than 12 months above Chronological Age</i>	29	9.7%	583	44.6%
Pupils who scored <i>at Chronological Age or up to 12 months above</i>	96	32.1%	502	38.4%
Pupils who scored <i>below Chronological Age, but by no more than 12 months</i>	142	47.5%	213	16.3%
Pupils who scored <i>below Chronological Age by more than 12 months</i>	32	10.7%	10	0.9%
TOTALS	299		1308	

We can see that for nearly 10% of those who didn't make enough of a start to score on the test at the end of their Reception Year, within only two years they are scoring more than a year ahead of their chronological ages – by which point they have 'overtaken' more than half their peer group! Then, when we look at those scoring below chronological age level at the end of Year Two, we can see that two years earlier over half of them had scored

above chronological age level at the end of their Reception Year. ***This is a salutary warning against speculating about pupils' capabilities and potential progress in literacy skills development when they are far too young for enough information and evidence to have been collected to enable useful judgements to be made.*** It is for this reason that we advocate mixed-ability, whole class teaching of literacy throughout Key Stage One using differentiation techniques explained on our courses. (Of course, this does not preclude giving **extra** practice to any group(s) of children making relatively slow progress at any particular time. Some pupils definitely need and benefit from more practice, though not from being taught differently.)

School Differences

For all sorts of reasons beyond the scope of this study, we can see significant differences between the results obtained in individual schools. In this study we are presenting data obtained from 24 schools, and within those schools a total of 76 classes. We wish to celebrate the fact that, at the end of Year Two, ***the average Spelling Age of the pupils in every single one of those classes was above the expected norms for the test.*** Furthermore the averages for the boys and girls taken separately in each class were also **ALL** above the test norms.

However, there was considerable variation in all these results with individual school results ranging from their pupils being just a few months above traditional expectation to an average of over two and a half years above. We are obviously interested in the underlying causes of such a wide variation in the outcomes from different schools. The feedback we get indicates that those schools where staff implement the Sounds~Write programme in accordance with the recommendations made on the training courses achieve the best outcomes for their pupils. However, there does seem to be a tendency for some teachers to supplement their Sounds~Write teaching with some of the activities they previously employed with classes prior to the training when those activities contravene Sounds~Write principles. Other teachers vary the emphasis they give to different aspects of the programme according to their own personal beliefs about literacy tuition and some reduce the amount of time they teach the programme to an amount below the minimum necessary for all pupils to gain sufficient daily practice with fundamental skills. What evidence we have points to the fact that pupils make much better progress if the Sounds~Write lessons are taught:

- for the half an hour a day we recommend;
- in the combination we advocate on the training;
- and, are overseen by a specialised teacher, ideally a member of the school senior management team charged with maintaining the integrity with which the programme is implemented in all classes – a very important issue, as highlighted in the ***Rose Report***.

When we compare the pupils' results at the end of Year Two with the results obtained at the end of Reception, there is usually a reduction in numbers due to children having left the school. These numbers changing schools varied considerably, reaching as high as 55% in one school. (*Showing that on average a pupil joined/left the class concerned about once a fortnight.*) We did wonder if this lack of stability in the class population might be an adverse factor affecting the pupils' learning. However, when we performed a Spearman Ranked-Order Correlation Test on the data this factor surprisingly proved to be of little significance.

Gender Differences

The results of this study do highlight some differences in the achievements of boys and girls. However, they are relatively minor, though obviously of interest and importance in respect of the way we manage our children's education.

Many leading educationalists have expressed their unhappiness about British four-year-olds being exposed to formal tuition during their Reception Year. Because we clearly agree with this concern we chose first to look at the results achieved by the pupils in this survey at the end of their Reception Year. Out of the 1607 pupils in the study, 299 did not score on the spelling test at the end of Reception (18.6% or nearly 1 in 5). We think that it can easily be argued that these pupils were not ready for formal tuition of literacy during Reception. It is within this group that we found the biggest difference between boys and girls. Nearly twice as many boys as girls did not score on the end of Reception Year test (195 boys and 104 girls to be precise). It is now generally accepted that all the available evidence points to girls maturing faster than boys in most respects during their early years, particularly in areas to do with language and socialisation. So, the finding that significantly more boys than girls are not ready for formal schooling by the age of four is completely unsurprising.

The spread of spelling attainments for the three Key Stage One years can be seen in Table 13 below. A simple comparison of the average Spelling Age data for each year group shows the girls' spelling ages to be ahead of the boys' on average by: 0.6 months at the end of YR, 2.2 months at the end of Y1, and 2.1 months at the end of Y2. Owing to the relatively large number of pupils in the study, these small differences are of statistical significance, but do not tell the whole story. In order to shed more light on what is happening we separated the pupils' data into two groups as follows:

- i) 1308 pupils who did score a Spelling Age on the test at the end of Reception; and
- ii) 299 pupils who did not.

All the scores were then analysed separately for both groups at the end of Years One and Two. These analyses are shown in Tables 15 and 16 on page 15.

For the 1308 pupils who did score at the end of Reception, the difference between boys and girls turned out to be a little lower than it was when considering all the pupils together. The actual differences were just 1.1 months at the end of Y1 and 1.5 months at the end of Y2. Thus, after three years teaching with linguistic phonics in Key Stage One, the average Spelling Age difference between the boys and girls was only 1.5 months. And as noted earlier, girls mature more rapidly than boys in their early years and would be expected to be ahead – but the difference we found really small and of no pedagogical consequence.

The results of the smaller group of 299 pupils who did not score at the end of Reception are even more interesting. At the end of Year One the girls in this group are ahead of the boys by an average 1.0 month, but by the end of Year Two on average they are 1.1 months behind the boys. In order to look more closely at what is happening we separated out all those pupils who scored a Spelling Age below their chronological age at the end of Year Two. The distribution of the results of these pupils is shown in the table below and in Chart Form on page 15.

Table 13: Pupils scoring Spelling Ages below their Chronological Ages at the end of Y2

Sex	No.	Under 5.11	Number of months Spelling Age was below Chronological Age when tested at the end of Y2																				
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Boys	239	7	33	24	39	19	25	12	17	12	13	8	4	6	4	4	4	3	3	1	0	1	0
Girls	157	1	24	21	13	12	9	21	11	10	6	6	3	6	5	2	2	2	1	0	1	0	1
Both	396	8	57	45	52	31	34	33	28	22	19	14	7	12	9	6	6	5	4	1	1	1	1

We suggest that most concern should fall on those pupils scoring a year or more behind chronological age by the end of Key Stage One, i.e. those pupils falling within the shaded areas of Table 11 above. This applies to 33 of the boys and 21 of the girls. From the original sample of 1607 pupils (805 boys and 802 girls) we suggest that there are real concerns about the literacy progress of just 4.1% of the boys and 2.6% of the girls, **NOT really indicative of a great gender divide.**

Table 14: Scores of all 1607 pupils in the study at the end of each of their three Key Stage One years

The columns on the right show the spread of results, with the column headings referring to the normal distribution of the original test standardisation sample of pupils						1 to 2 standard deviations below mean CA		0 to 1 standard deviation below mean CA		0 to 1 standard deviation above mean CA		1 to 2 standard deviations above mean CA		More than 2 standard devs. above mean CA	
Year Group	Gender	Number not achieving test baseline score	Number that did score on the test	Average Spelling Age	Average Chronol. Age	(Spelling Age – Chronol. Age) differences grouped in six-monthly intervals above/ below mean									
						Over 18	13 – 18	7 - 12	0 – 6	0 – 6	7 - 12	13 - 18	19 - 24	25 - 30	Over 30
YR	Boys	195	610	6y 6·2m	5y 3·8m	n/a ¹	n/a	n/a	n/a	52	177	236	123	21	1
	Girls	104	698	6y 6·8m	5y 3·8m	n/a	n/a	n/a	n/a	40	199	275	154	25	5
	All	299	1308	6y 6·5m	5y 3·8m	n/a	n/a	n/a	n/a	92	376	511	277	46	6
Y1	Boys	30	775	7y 1·2m	6y 3·4m	n/a	n/a	6	79	241	216	117	55	34	27
	Girls	13	789	7y 3·4m	6y 3·4m	n/a	n/a	4	49·5 ²	187·5	232	164	78	32	42
	All	43	1564	7y 2·3m	6y 3·4m	n/a	n/a	10	128·5	428·5	448	281	133	66	69
Y2	Boys	7	798	8y 1·3m	7y 3·2m	1	19	60	162	161	105	84	61	47	98
	Girls	1	801	7y 3·4m	6y 3·4m	2	12	42	109·5	167·5	145	91	60	41	131
	All	8	1599	8y 2·7m	7y 3·3m	3	31	102	271·5	328·5	250	175	121	88³	229³
						108	148	241	307·5	307·5	241	148	71	27	10

The figures in the row above show what the expected distribution of Spelling Ages for a sample of 1607 pupils would be based on the original test norms.

¹ n/a stands for not applicable, i.e., given the pupil ages and the test standardisation, pupils could not obtain a score placing them in one of these cells.

² At the centre of the distribution, pupils scoring Spelling Ages exactly equal to their Chronological Ages are split between the 0 - 6 months below and 0 - 6 months columns. The presence of 'half' children occurs because an odd number of pupils had Chronological Ages the same as their Spelling Ages!

³ The figures **88³** **229³** include 139 pupils (84 girls and 55 boys) who scored above the 11·0 year maximum achievable Spelling Age on the test used.

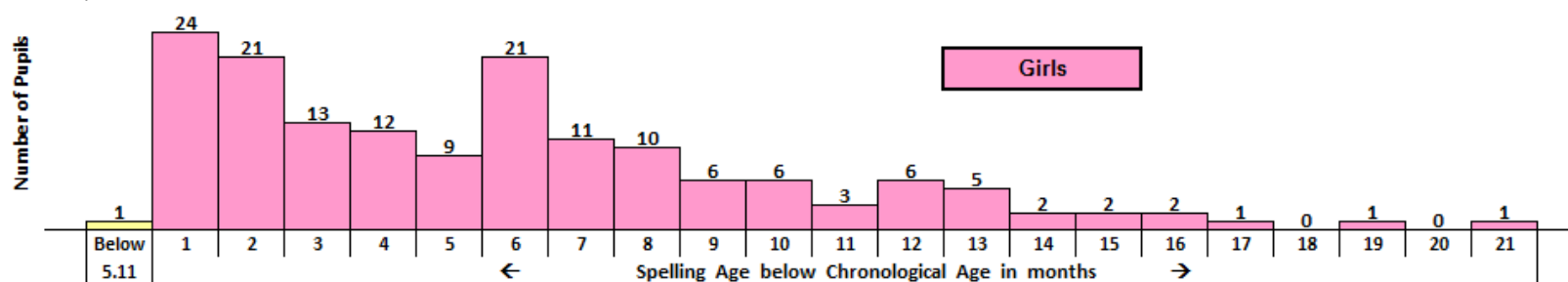
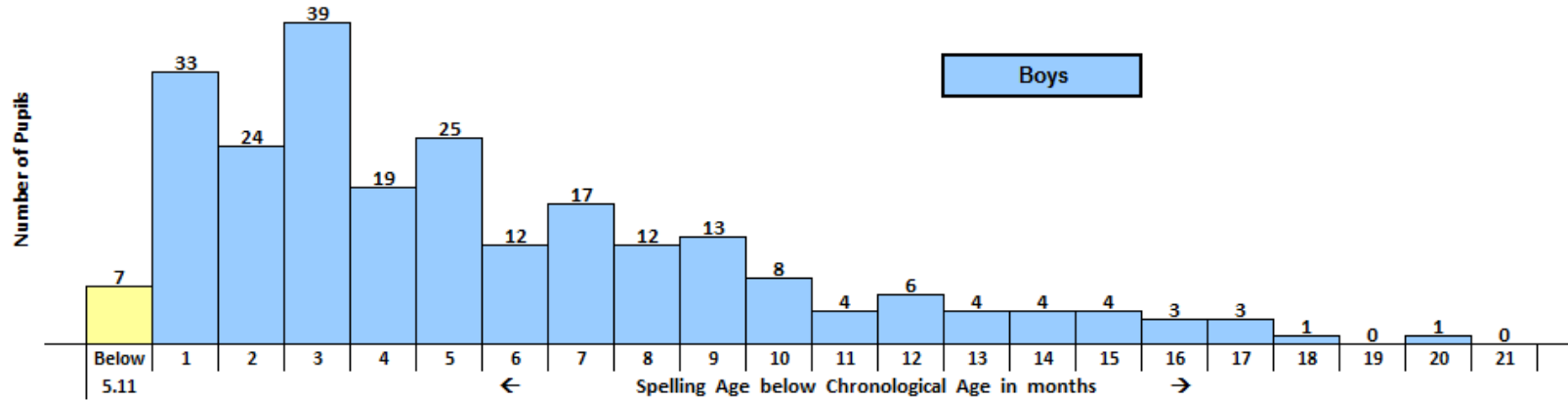
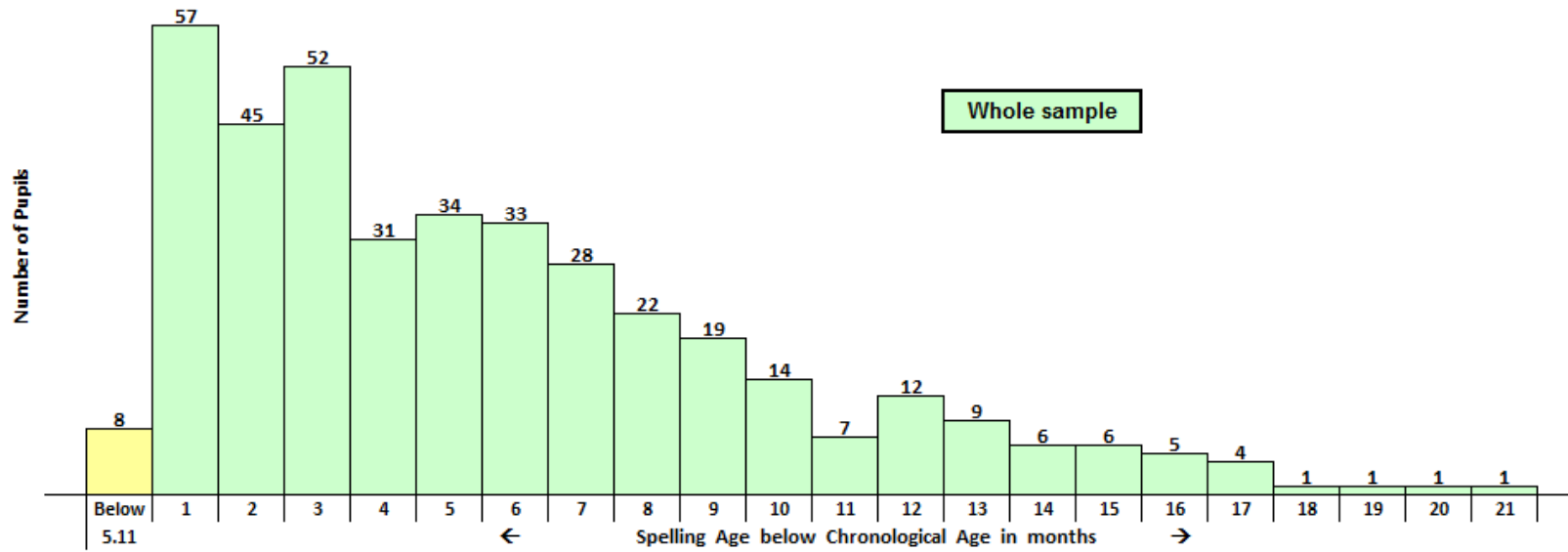
Table 15: Scores of the 1308 pupils who achieved test baseline score of 5y 11m or above at the end of Reception

The columns on the right show the spread of results in 6-monthly intervals, with the column headings referring to the normal distribution of the original test standardisation sample of pupils						1 to 2 standard deviations below mean CA		0 to 1 standard deviation below mean CA		0 to 1 standard deviation above mean CA		1 to 2 standard deviations above mean CA		More than 2 standard devs. above mean CA	
Year Group	Sample	Size		Average SA	Average CA	A Over 18	B 13 – 18	C 7 - 12	D 0 - 6	E 0 - 6	F 7 - 12	G 13 - 18	H 19 - 24	I 25 - 30	J Over 30
YR	Boys	610		6y 6-2m	5y 3-8m	n/a	n/a	n/a	n/a	52	177	236	123	21	1
	Girls	698		6y 6-8m	5y 3-8m	n/a	n/a	n/a	n/a	40	199	275	154	25	5
	All	1308		6y 6-5m	5y 3-8m	n/a	n/a	n/a	n/a	92	376	511	277	46	6
Y1	Boys	610		7y 3-4m	6y 3-7m	n/a	n/a	1	40.5	158.5	189	106	54	51	10
	Girls	698		7y 4-5m	6y 3-6m	n/a	n/a	3	30.5	150.5	207	157	75	61	14
	All	1308		7y 4-0m	6y 3-7m	n/a	n/a	4	71	309	396	263	129	112	24
Y2	Boys	610		8y 4-8m	7y 3-5m	0	6	24	97	118	96	71	59	45	94
	Girls	698		8y 6-3m	7y 3-6m	0	4	29	77	134	139	88	58	38	131
	All	1308		8y 5-6m	7y 3-5m	0	10	53	174	252	235	159	117	83	225

Table 16: Scores of the 299 pupils who didn't reach the test baseline score of 5y 11m by the end of Reception

The columns on the right show the spread of results, with the column headings referring to the normal distribution of the original test standardisation sample of pupils						1 to 2 standard deviations below mean CA		0 to 1 standard deviation below mean CA		0 to 1 standard deviation above mean CA		1 to 2 standard deviations above mean CA		More than 2 standard devs. above mean CA	
Year	Sample	Size	Didn't score on test (CA still below test baseline)	Average SA	Average CA	A Over 18	B 13 – 18	C 7 - 12	D 0 - 6	E 0 - 6	F 7 - 12	G 13 - 18	H 19 - 24	I 25 - 30	J Over 30
Y1	Boys	195	25(11)	6y 5-7m	6y 2-5m	-	-	5	44	82	27	11	1	-	-
	Girls	104	11(4)	6y 6-7m	6y 1-9m	-	-	2	19	38	25	7	2	-	-
	All	299	36(15)	6y 6-1m	6y 2-3m	-	-	7	63	120	52	18	3	-	-
Y2	Boys	195	7(0)	7y 2-1m	7y 2-4m	1	13	36	65	43	9	13	2	2	4
	Girls	104	1(0)	7y 1-0m	7y 1-6m	2	8	13	32.5	33.5	6	3	2	3	-
	All	299	8(0)	7y 1-7m	7y 2-1m	3	21	49	97.5	76.5	15	16	4	5	4

Charts showing the distribution of all pupils scoring a Spelling Age below Chronological Age at the end of Year Two



Pupils who develop literacy skills relatively slowly

There is nothing controversial about the fact that individuals vary in respect of the speed at which they learn new skills. Some need far more practice and exposure to the materials involved than do others. Given the twelve months difference in age between the oldest and youngest in every year group, together with the wide variation of individual knowledge and skills being brought to bear on new learning tasks, we know that some pupils will inevitably develop literacy skills at a much slower rate than others. Knowledge of the extent of these differences should inform our teaching practices in respect of both its pace and overall duration. The end of Year Two results presented in Tables 13 to 15 show a considerable variation in pupils' literacy attainments by the end of Key Stage One. In terms of developing competence in literacy we suggest a broad analysis in the table below.

Table 17: Progress made in literacy development by the end of Key Stage One

Table 14 Column	No. of pupils	% of sample	Progress made by end of Year Two	Daily ongoing tuition of phonics required throughout
J	229	14.3	These pupils have all probably already reached an adult level of phonic knowledge and understanding, <i>i.e., there is little or nothing left to explicitly teach them about the English alphabet code.</i>	<i>Unnecessary*</i>
G + H + I	384	23.9	Excellent progress made by these pupils beyond traditional expectations	<i>Year Three</i>
D + E + F	850	52.9	Making normal average progress	<i>Years Three & Four</i>
C	102	6.3	Making progress, but relatively slowly	<i>Years Three, Four & Five</i>
A + B	42	2.6	Very slow progress, at risk of not achieving proper independent literacy skills for life. Special support indicated.	<i>Much, or all, of the remainder of their schooling</i>

** Although, like all the other pupils in the sample, they are still only seven years old and have much left to learn in the way of new vocabulary and concepts - and spellings of new vocabulary should continue to be learned in a phonic manner.*

We are advocating here that accurate phonics tuition underpins pupils' literacy development and that it needs to be **properly embedded and completed** if ALL pupils are to be given a real chance of becoming sufficiently literate to cope with a high school curriculum at Key Stages Three and Four. We are in no doubt that the core idea within the National Literacy Strategy that phonics is something to deal with quickly in Reception and Year One before moving on to other strategies in Year Two and beyond is fundamentally flawed and is not validated by evidence-based practice. The one factor that unites all the hundreds of thousands of semi-literate and barely-literate pupils in our schools (*and adults in the community*) is a failure to grasp the true nature of phonics, which underpins the understanding of those of us who are literate. However, approaching literacy from a phonic direction requires expert teaching and clearly takes a long time to become established and understood by many of our children due to the complexity of the English alphabet code. To remove the educational focus from teaching phonics when pupils are only aged six is a guarantee that high levels of illiteracy in the UK will be maintained for many future generations.

As to the question of teaching and supporting children who, relative to their peers, demonstrate quite severe difficulty in mastering basic literacy skills (i.e. those falling a year or more behind by the end of Key Stage One – the shaded areas in Table 13, page 13) we suggest the starting point should be a wide ranging assessment covering at the very least, vision, hearing and cognition. An evaluation of their individual special educational needs would constitute the starting point for consideration of what further resourcing might be brought to bear on their particular learning difficulties.

Autumn, spring and summer birthdays

On September 1st each year pupils entering Reception classes range in age from four years old exactly up to four years and 364 days. This results in the oldest pupils being 25% older than the youngest. They will have experienced five years' development beyond the womb, whereas the youngest will have experienced only four years. This must clearly have a **SIGNIFICANT** bearing on the level of knowledge and skills they bring with them to the classroom. The actual gulf between the most and least developmentally advanced pupils will be much greater than 25% when other factors involved in development are also considered, e.g. the prior and continuing quality of parenting in respect of care, stimulation and nutrition, etc. We would be very surprised indeed to find that *age on school entry* was not a factor that affected the long term outcomes of schooling generally and literacy development specifically. In Table 18 overleaf we report on our sample of 1607 pupils split into three groups by month of birth. This enables us to examine the overall progress made by each group in relation to the school term within which their birthdays fall.

As can be seen, the results obtained follow the obvious pattern to be anticipated from such data with the average progress made being greatest by those with autumn birthdays, and lowest by those with summer birthdays, for each of the three year groups. This is a well-known finding and considerable research has shown the same pattern occurring for 'academic success' right up to GCSE level results and beyond. Nevertheless, the overall difference in literacy progress between the autumn and summer birthday groups is less than it might be. Looking at the Reception year figures we can see that, on average, the pupils with autumn birthdays are only two months ahead of those with summer birthdays (6y 7.5m to 6y 5.5m), whereas the average difference in age between these two groups is eight months. This suggests that the effect of teaching them all together as classes has probably resulted in 'holding back' many of the older ones while accelerating the progress of many of the youngest. It is interesting to see that the gap between the three groups gradually widens in Years One and Two, but we are cautious about the meaning of this finding which might be the result of test artefact rather than anything else. The most important finding in Table 18, overleaf, relates to the spread of pupils who did not score on the test at the end of their Reception Year – our observations about this have been written underneath the table itself.

Table 18:

Autumn , Spring & Summer Birthdays

	Gender	Number	Reception Year			Year One			Year Two		
			Number with SA below 5y 11m	Number Scoring on Test	Average Spelling Age	Number with SA below 5y 11m	Number Scoring on Test	Average Spelling Age	Number with SA below 5y 11m	Number Scoring on Test	Average Spelling Age
Autumn Birthdays Sep/Oct/Nov/Dec	Girls	280	21	259	6y 8·1m	4	276	7y 5·2m	0	280	8y 6·7m
	Boys	277	51	226	6y 6·9m	7	270	7y 3·1m	4	273	8y 4·3m
	Both	557	72(12·9%)	485	6y 7·5m	11(2·0%)	546	7y 4·2m	4(0·7%)	553	8y 5·5m
Spring Birthdays Jan/Feb/Mar/Apr	Girls	247	31	216	6y 6·2m	3	244	7y 2·7m	0	447	8y 2·7m
	Boys	261	62	199	6y 6·5m	11	250	7y 1·1m	0	261	8y 0·7m
	Both	508	93(18·3%)	415	6y 6·4m	14(2·8%)	494	7y 1·9m	0(0·0%)	508	8y 1·7m
Summer Birthdays May/Jun/Jul/Aug	Girls	275	52	223	6y 5·9m	6	269	7y 2·1m	1	274	8y 2·6m
	Boys	267	82	185	6y 5·1m	12	255	6y 11·5m	3	264	7y 10·9m
	Both	542	134(24·7%)	408	6y 5·5m	18(3·3%)	524	7y 0·8m	4(0·7%)	538	8y 0·8m

The column shaded grey shows the number of pupils who did not score on the test at the end of Reception. In round figures this amounted to 25% of those with summer birthdays, 18% of those with spring birthdays and only 13% of those with autumn birthdays. In respect of the national cohort of 600,000 pupils entering school each year this suggests that 50,000 of those with summer birthdays are NOT READY for formal academic tuition of literacy compared to only 26,000 of those with autumn birthdays. The evidence appears quite straightforward. For parents wanting to optimise their children's literacy development, they should arrange their conceptions to occur in the Christmas holiday with a view to their offspring being born in September so they become amongst the oldest in their year groups. *(But if things don't go to plan, then there is the possibility that their children could end up with August birthdays and then be amongst the youngest in their year groups!)*

Appendix A: Linguistic Phonics and the Sounds~Write teaching programme

In her book *Early Reading Instruction: What Science Really Tells Us about How to Teach Reading* (page 320), Dianne McGuinness has written the following description of Linguistic Phonics:

LINGUISTIC PHONICS *Incomplete* (a) called (*synthetic*) teaches from the sound to the letter. Teaches the 40+ phonemes of English and their main spellings, plus some spelling alternatives. *Complete* (b) includes (a) above plus 136 spelling alternatives.¹

Apart from the very precise figure of 136² spelling alternatives, we agree completely with this description. However it is just an overview of one element of the facts that need to be taught and, of itself, says nothing about the actual mechanics of how the teaching of literacy should be approached in the classroom.

Sounds~Write was developed and written seven years ago because of our concern that the traditional synthetic phonic programmes available in the market place were significantly flawed. Furthermore, within schools, phonics was (and predominantly still is) being taught by teachers and support assistants, more or less none of whom could claim to have had any prior training in what phonics is really about and how it needs to be taught. Really bad practice pervades the teaching of literacy in all English speaking countries. This is not the fault of the teachers! The blame lies squarely with the universities, teacher training colleges and (in the UK) the DCSF. An analysis of the latest UK government document, **Letters and Sounds**, shows it to be firmly within the *synthetic phonic* category as described above, with a lot of word lists illustrating some spelling alternatives bolted onto it. What this document fails to do is provide evidence of understanding how (or why) these spelling alternatives should be managed and taught. What is clear from reading the documents is that knowing the spelling alternatives is an expected **outcome** of tuition; however the teachers themselves have to work out how that should be accomplished. Unfortunately the early Stages of the Letters & Sounds programme fail to support and promote pupils' fundamental knowledge and understanding of phonics or to develop the skills that enable them to implement that knowledge and understanding. Without the foundations of the subject solidly in place, many are set up for long term failure, as has already been the case for many generations in the past.

Unlike most other existing synthetic phonic programmes, Sounds~Write was written as a bottom-up programme based primarily on knowledge of child development and learning theory rather than on the top-down adult analyses that have provided the various myths that pervade traditional teaching, such as: silent letters, so-called magic 'e', hard sounds and soft sounds, short sounds and long sounds, etc. In the Sounds~Write programme teaching activities are ALWAYS focused in the direction of spoken sounds in words to how those words sounds are written and NEVER backwards from written words to how those words are spoken.

Given the problem that the majority of teachers have never been accurately trained in how to teach phonics, we have restricted access to our teaching ideas to those willing to attend one of our training courses for a week during which they are taken through the whole of the literacy development process and given a proper opportunity to re-organise their ideas about what phonics really is about and how to teach it.

¹[McGuinness, D, (2004), *Early Reading Instruction: What Science Really Tells Us about How to Teach Reading*. MIT Press.

² In our publication *A Lexicon of English Spellings* (pp 68/9) we include a list of 245 English spellings and alternative spellings. The number of alternative spellings that actually need to be taught depends on the speed with which pupils develop their understanding of the English alphabet code. Most pupils need to be taught far less than the figure of 136 spelling alternatives quoted by Dr McGuinness. The Sounds~Write teaching programme aims to teach pupils mastery of the alphabet code system. Once that has been achieved, there would be little purpose in continuing to introduce further rarely used spellings as part of a literacy tuition programme. But they might appear as part of an English language development programme as pupils are introduced to new ideas and concepts and the language we use to express them. The **Lexicon** can be viewed/purchased by following the link at www.sounds-write.co.uk.

As Hargreaves¹ has noted, the fundamental flaw in educational research lies in 'the gap between researchers and practitioners'. The research agenda is led by researchers and not by teachers. This has one very serious implication: researchers and research establishments decide what they believe is worth funding, which often has little relevance to teaching practitioners and policy makers. Lack of good research has always been an issue in the field of English literacy and we have too much of what Hargreaves¹ claims is 'frankly second-rate educational research which does not make a serious contribution to fundamental theory or knowledge, which is irrelevant to teaching practice, which is uncoordinated with any preceding or follow-up research, and which clutters up academic journals that virtually nobody reads.'

In the absence of any evidence to the contrary, we believe that there is a lack of any serious research into the actual outcomes of most published literacy tuition programmes. Practice is based on 'tradition (*how it has always been done*), prejudice (*how I like it done*), dogma (*this is the 'right' way to do it*), and ideology (*as required by some current orthodoxy*)' (Cox, quoted in Hammersley, 2007, page 12¹). In fact, if we were cynical we might suppose that lack of any real evidence of effectiveness enables programmes to be advertised and sold purely on the basis of belief, just like any good snake oil. If any parent or teacher were to ask about what percentage of pupils become properly literate as a result of their teachers following the latest DCSF programme **Letters & Sounds**, there would be a resounding silence. No one knows! Furthermore, as far as we know, no one is involved in trying to find out. No doubt in ten years' time there will be government pronouncements that, having reduced the English Key Stage Three SAT pass mark yet again, the DCSF can assure everyone that more children than ever have passed it – and we can guarantee that the following day the head of the CBI will again be complaining about increased numbers of illiterate pupils entering the workplace.

Having constructed a literacy tuition programme then, our primary concern was to set about collecting evidence of the programme's utility and effectiveness. Consequently, from the very first term in which we started running training courses, we asked all our teacher trainees if they would be willing to provide us with feedback about the Sounds~Write programme. In particular we asked Reception teachers if they would be willing to administer literacy tests to their pupils at the end of their first academic year of teaching the Sounds~Write programme. Satisfied with the results, both qualitative and quantitative, many head teachers and key stage managers were then persuaded to send their Years One and Two teachers for training so that the programme could be continued throughout Key Stage One and these teachers were also happy to do further testing. This process has continued over the last six years and gradually more schools have volunteered themselves into collecting data to help increase the size of our sample. Thus far, as the results show, the impact of Sounds~Write teaching in schools participating in the study appears to be very positive and many head teachers are convinced that their investment in high quality training has been cost effective. Many continue to send newly appointed staff on available trainings.

In order to ensure uniformity of data collection we have supplied each school in the study with a copy of the Parallel Spelling Tests. After that, to ensure uniformity, each year we send every class teacher collecting the data a pack consisting of test administration details, class record forms and individual answer sheets for each pupil. Testing is normally carried out in June each year, but, depending on circumstances, some classes are tested towards the end of May and others early in July. We ask for the packs to be returned to us with all the individual answer sheets, which we check before entering the pupils' results into our database.

¹Hargreaves, D., 'Teaching as a research-based profession: possibilities and prospects' (The Teacher Training Agency Lecture 1996), in Hammersley, M., Ed., (2007) *Educational Research and Evidence-based Practice, London, The Open University/Sage*.

Appendix C: Thoughts on measurement and the test chosen for use in this study

Historically, three types of test have been constructed for looking at literacy: comprehension tests, reading tests, and spelling tests. These have generally been constructed independently of each other and their results engineered to conform to the normal distribution curve (often referred to as a **bell curve** due to its shape).

We rejected comprehension tests as a research tool because they are only of use when pupils are actually literate. In fact they should not be used with any pupil unless the pupil can actually read the words contained in the text. Even if the pupil can accurately decode and read the text, s/he may not know the meanings of many of the words it contains¹. In this situation failure to answer questions about the text accurately are therefore highlighting problems with the understanding of words and language, not with literacy in terms of being able to convert marks on paper back into speech. We would like to note here that the policy of the National Literacy Strategy, inasmuch as it measures anything at all, is to test for comprehension in the English SATs tests: they are not discrete tests of reading and spelling ability. This, however, might explain why we regularly see headlines of the type **80% of Y6 pupils achieve level 4 English** at the same time as, **40% of pupils leave primary school with insufficient literacy skills to cope with their high school curriculum**. Additionally, institutions such as the CBI and the Armed Services continue to be faced with the problem of how to manage large numbers of illiterate 16 to 18-year-olds entering the work force every year despite many of these pupils having good SATs results and GCSE qualifications.

Secondly, we decided not to use reading tests in our study for several very important reasons. They are very time-consuming to administer and therefore only single-word recognition tests would be a viable proposition for a large-scale study. Unfortunately, as the name implies, when looking at individual words they may be 'sight recognised', without any understanding on the pupil's part of how they are constructed phonically. So when, for example, a pupil says, 'said', whilst looking at the written word < said >, there is nothing in these tests to tell us whether the pupil knows that the two-letter spelling < ai > can represent the sound 'e' in English, or whether the whole word has just been visually memorised. Furthermore, if words 'read' correctly on reading tests are subsequently set as part of spelling tests, we find in clinical practice that some pupils cannot accurately write over half the words they could supposedly read correctly. Evidence from clinical practice also shows that many pupils with good visual memories can score 'Reading Ages' on this type of test as high as 9.0 or 10.0 years whilst having phonic decoding skills below an 8.0 year level. It is therefore evident that **good Reading Age scores** are inadequate measures of either fluent reading ability or general progress in literacy skills development.

At this point we would like to take a step back and ask what is actually meant by literacy tuition. From all our previous experience in the field of literacy tuition we confidently assert the following.

True literacy development and understanding requires that a pupil can:

- (a) **turn written text back into speech using a decoding process that has reached automaticity so that conscious thought is not normally involved - the whole of conscious awareness being available to try to comprehend the meaning of the text being decoded²;**

AND

- (b) **write his or her thoughts down, accurately spelled, using the actual language employed during the thought processes involved, i.e., without having to modify their thinking so that it only encompasses a highly restricted vocabulary that they think they might be able to spell relatively well.**

¹ In fact, as Diane McGuinness makes clear in *Early Reading Instruction*, (2004, MIT Press), 'Comprehension means more than a good vocabulary. It involves a number of language skills, such as the ability to use syntax to anticipate words in a sentence and assign unknown words to the appropriate part of speech. It includes an aptitude for monitoring context, making inference on the basis of background knowledge, as well as familiarity with oral and literary forms (genres).' Page 211.

² Keith Stanovich maintains that unless automaticity is achieved, '[s]low, capacity-draining word-recognition processes require cognitive resources that should be allocated to higher level processes of text integration and comprehension. Thus, reading for meaning is hindered, unrewarding experiences multiply, and practice is avoided or merely tolerated without real cognitive involvement.' Stanovich, K., 'Matthew Effects in Reading: Some Consequences of Individual Differences in the Acquisition of Literacy', in Stanovich, K., (2000), *Progress in Understanding Reading: Scientific Foundations and New Frontiers*, The Guildford Press, London.

Literacy involves both of the above, and these two processes are neither identical nor totally parallel. **Reading**, which is what we are describing in (a) above, is the simpler *receptive* side of the complex set of skills and knowledge that is true literacy, whilst (b), **writing** (involving spelling) is the more difficult *expressive* side and requires a deeper kind of memory. Particularly over the last couple of decades, the increasing awareness of the large number of partially or wholly illiterate pupils leaving the education systems of all English-speaking countries seems to have generated a panic-driven rush to attempt to teach pupils how to read at the expense of their writing and spelling. We are in no doubt that unless reading and spelling are properly taught **systematically and together** as equally important aspects of one literacy system, then writing standards suffer a dramatic decline. There is little, if any, evidence that focusing on reading alone produces literate pupils. This is why Sounds~Write puts an emphasis on both reading and writing, and accurately focuses teachers on the reversibility of the alphabet code.

Returning to the question of measurement, writing accurately is the most difficult aspect of literacy. It is of course much easier to read the word '**duck**' than it is to spell it because when writing it young children have to remember which spelling of the sound /k/ to use. Thus tests that require writing should be the most useful and accurate for measuring overall progress. Our contention, therefore, is that good spelling tests require children to write accurately words they hear spoken by the test administrator. We think such tests are most appropriately constructed so that pupils not only hear each word of the test spoken in isolation, but also hear each word spoken within the context of a simple meaningful sentence. Unlike reading tests, where the pupil is looking at the words concerned with the possibility of visual memory being stimulated to recall whole words, spelling tests require pupils to segment each test word into its component sounds and then to write those sounds in the correct sequence, selecting the correct spelling (grapheme) for each one. **Importantly, we think it self-evident that pupils would not be able to spell accurately words on a spelling test that they could not actually read if they met them in text.** In clinical situations we see very few examples of words that pupils can spell accurately but subsequently read incorrectly. Where this does happen there is usually a logical explanation such as a similar word having been trained as a flash card type sight-vocabulary training activity (e.g. a pupil sounds out and correctly spells the word **bother**, but subsequently reads it as **brother** because **brother** still continues to appear in high frequency word lists for sight memorisation rather than phonic decoding. Our submission is that, in trying to achieve speed/fluency, the pupil's first attempt at reading is to guess at the whole word. (Speed apparently being more important than accuracy!) We assert that if a pupil achieves a Spelling Age of X on a well constructed spelling test, their Reading Age must necessarily also be at a similar level X, or higher. Spelling results really do tell us something useful about the potential ability of pupils to actively record information, to write imaginatively and generally to succeed with the literacy tasks they face in the classroom. In addition, spelling tests can be carried out collectively, thereby minimising teacher time in administration and at the same time providing a written record of pupils' responses that can be kept to refer back to as the pupil progresses from class to class.

The particular spelling test that we have chosen for our data collection procedure is Test A from the *Parallel Spelling Tests* by Dennis Young, second edition 1998, published by Hodder & Stoughton. (ISBN 0-340-73093-5).

Appendix D: Some Results from Years Three, Four and Five (continuing to follow pupils taught by Sounds~Write throughout Key Stage One)

Table 19: Pupil Spelling Results at the end of Year Three (results obtained from 13 different primary schools)

Boys: Average SA = 9y 3·6m, Average Chronological Age = 8y 3·0m, Average (SA – CA) = 12·6m. **Girls:** Average SA = 9y 7·1m, Average Chronol. Age = 8y 3·1m, Average (SA – CA) = 16·1m.

Whole Year Three sample: Average Spelling Age* = 9y 5·5m, Average Chronological Age = 8y 3·1m, Average (SA – CA) = 14·4m.

*139 (29%) of these 484 pupils scored above the test ceiling of 11.0 years which considerably reduced the average Spelling Age of the sample.

Year Group	Number not achieving baseline score	Gender	Number scoring at baseline or above	More than 2 standard deviations below mean CA		1 to 2 standard deviations below mean CA		0 to 1 standard deviation below mean CA		0 to 1 standard deviation above mean CA		1 to 2 standard deviations above mean CA		More than 2 standard devs. above mean CA			
				(Spelling Age – Chronological Age) differences grouped in six-monthly intervals above/ below mean													
				Over 30	25 – 30	19 - 24	13 – 18	7 - 12	0 – 6	0 – 6	7 - 12	13 - 18	19 - 24	25 - 30	Over 30		
Y3	0	Boys	232	0	1	5	14	28	26	16	21	18	20	32	51		
	0	Girls	252	0	0	3	7	12	30	27	21	23	34	46	49		
	0	All	484	0	1	8	21	40	56	43	42	41	54	78	100		

367 of the 484 pupils in this sample scored a Spelling Age equal to, or above, their Chronological Age. This is 75% of the whole sample. GCSE Examinations for 16-year olds are purported to require a reading age of 10 to 10½. 199 pupils (41%) of this sample have already attained literacy skills at that level (*or above*) three years before they are due to move on to secondary schooling.

Table 20: Pupil Spelling Results at the end of Year Four (results obtained from 2 different primary schools)

Boys: Average SA = 10y 1·7m, Average Chronological Age = 9y 3·5m, Average (SA – CA) = 10·2m. **Girls:** Average SA = 10y 8·8m, Average Chronol. Age = 9y 3·0m, Average (SA – CA) = 17·8m

Whole Year Four sample: Average Spelling Age = 10y 5·5m, Average Chronological Age = 9y 3·2m, Average (SA – CA) = 14·3m.

The test ceiling was not an issue for this sample because we tested them on the Parallel Spelling Test B, designed for older pupils whose norms extend to a 15.0 year level.

Year Group	Number not achieving baseline score	Gender	Number scoring at baseline or above	More than 2 standard deviations below mean CA		1 to 2 standard deviations below mean CA		0 to 1 standard deviation below mean CA		0 to 1 standard deviation above mean CA		1 to 2 standard deviations above mean CA		More than 2 standard devs. above mean CA			
				(Spelling Age – Chronological Age) differences grouped in six-monthly intervals above/ below mean													
				Over 30	25 – 30	19 - 24	13 – 18	7 - 12	0 – 6	0 – 6	7 - 12	13 - 18	19 - 24	25 - 30	Over 30		
Y4	0	Boys	20	0	0	2	1	1	2	2	1	4	4	1	2		
	0	Girls	24	0	0	0	0	1	3.5	0.5	1	8	4	1	5		
	0	All	44	0	0	2	1	2	5.5	2.5	2	12	8	2	7		

34 of the 44 pupils in this sample scored a Spelling Age equal to, or above, their Chronological Age. This is 77% of the whole sample. GCSE Examinations for 16-year olds are purported to require a reading age of 10 to 10½. 30 pupils (68%) of this sample have already attained literacy skills at that level or above **two years before** they are due to move on to secondary schooling.

Table 21:

Pupil Spelling Results at the end of Year Five (results obtained from 3 different primary schools)

Boys: Average SA = 12y 4·4m, Average Chronol. Age = 10y 2·3m, Average (SA – CA) = 26·1m. **Girls:** Average SA = 12y 1·5m, Average Chronol. Age = 10y 3·6m, Average (SA – CA) = 22·0m. **Whole Year Five sample:** Average Spelling Age* = 12y 2·9m, Average Chronological Age = 10y 3·0m, Average (SA – CA) = 23·9m.

*Despite having used Parallel Spelling Test B with a test ceiling of 15.0 years, 9 (almost 10%) of these 93 10-year-old pupils scored above that test ceiling.

Year Group	Number not achieving baseline score	Gender	Number scoring at baseline or above	More than 2 standard deviations below mean CA	1 to 2 standard deviations below mean CA	0 to 1 standard deviation below mean CA	0 to 1 standard deviation above mean CA	1 to 2 standard deviations above mean CA	More than 2 standard devs. above mean CA						
				(Spelling Age – Chronological Age) differences grouped in six-monthly intervals above/ below mean											
				Over 30	25 – 30	19 - 24	13 – 18	7 - 12	0 – 6	0 – 6	7 - 12	13 - 18	19 - 24	25 - 30	Over 30
Y5	0	Boys	44	0	0	0	2	2	2	2	3	6	3	5	19
	0	Girls	49	0	0	0	1	3	3	3	10	5	5	4	15
	0	All	93	0	0	0	3	5	5	5	13	11	8	9	34

80 of the 93 pupils in this sample scored a Spelling Age equal to, or above, their Chronological Age. This is 86% of the whole sample. GCSE Examinations for 16-year olds are purported to require a reading age of 10 to 10½. 83 pupils (89%) of this sample had already attained literacy skills at that level or above a year before they are due to move on to secondary schooling.

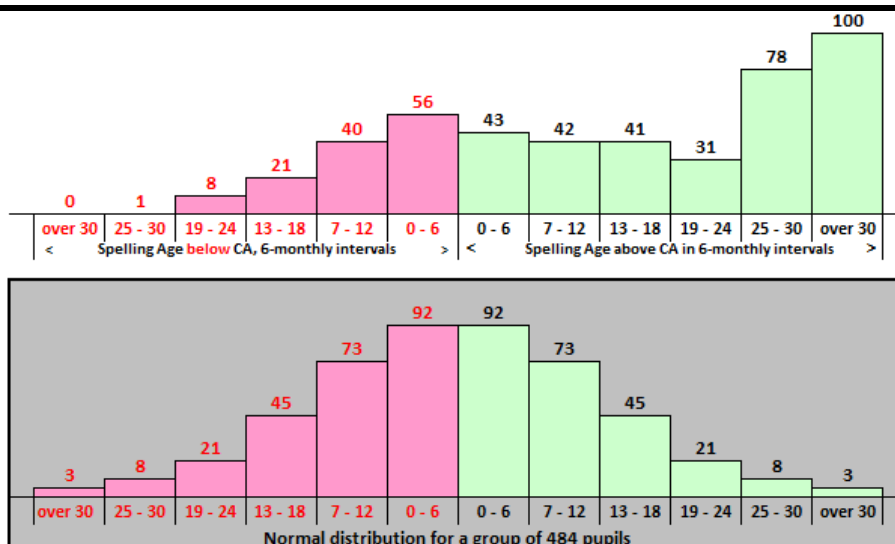
One of the schools from which the pupils in this study were drawn agreed to their pupils providing some Reading Test results, as follows:

Number of pupils tested 44. Average Chronological Age: 10y 3·0m. Average Burt Reading Age: 11y 7·3m. Average Parallel Test B Spelling Age: 12y 6·6m

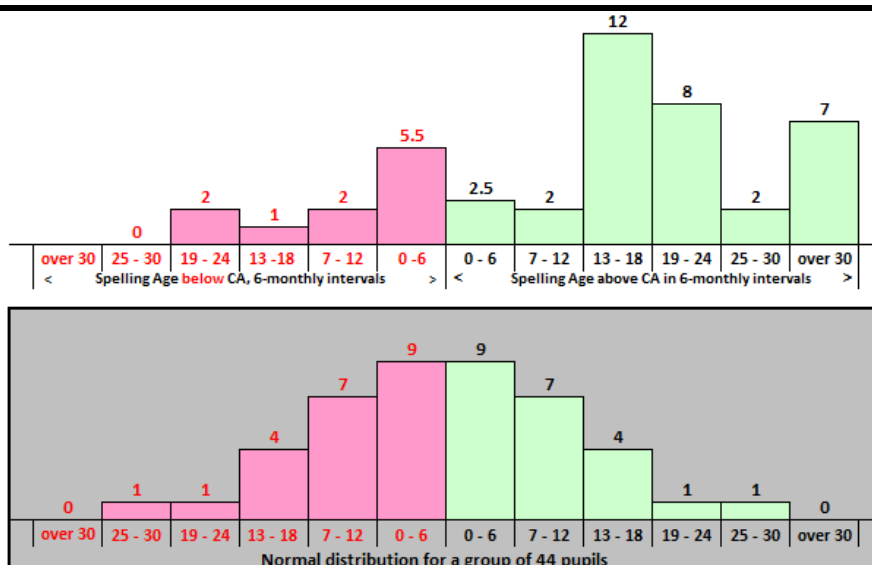
We have already drawn attention to the reasons why we think spelling tests measure literacy development far better than reading tests. Given the lack of guessing that occurs in pupils taught by a linguistic phonic approach, we are not at all surprised that their scores are lower on the reading test, but it is a finding we had already predicted and if anything we find it encouraging.

Pupil Spelling Results in Key Stage Two

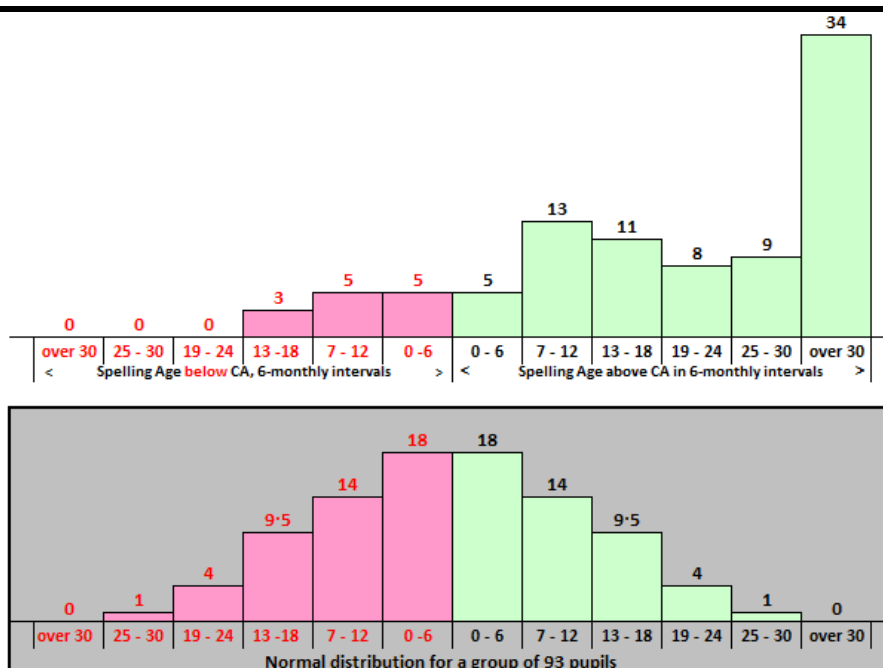
Year Three



Year Four



Year Five

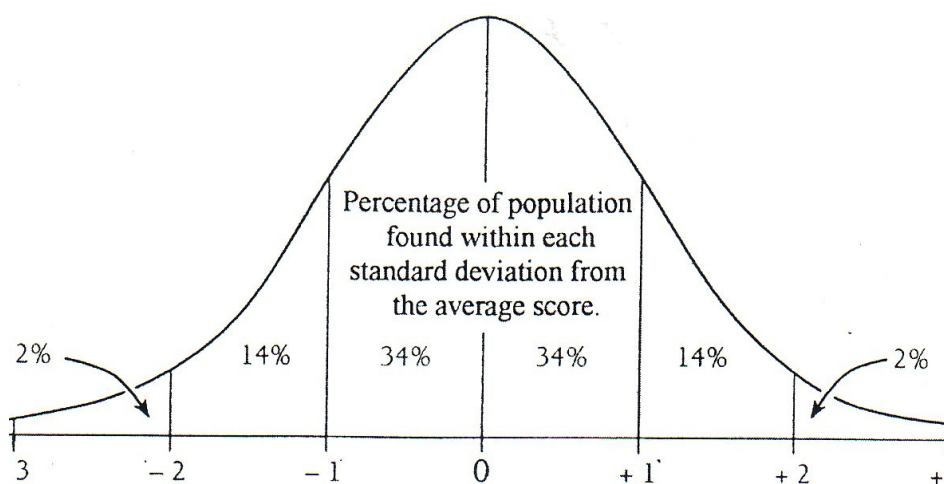


We have already explained in Appendix C why we did not choose to use reading tests to measure the progress of pupils being taught by Sounds~Write. However, at the outset we always knew that there would be readers of our work who 'needed' to see such data. We are therefore particularly grateful to all those Year One and Year Two teachers who took the time and trouble for several years at the start of our survey to test their pupils on the Burt (Word recognition) Reading Test as well as the Parallel Spelling Test. We ceased asking for this data once we felt that the results confirmed our belief that traditional reading tests are very poor measures of literacy skills development. The results that were obtained are shown in the Tables 22 and 23 opposite.

When we started collecting data we said that we thought that the effect of the Sounds~Write programme on the expected bell-shaped curve would be to push it to the right (i.e. increase average attainment levels) and skew it so that the left-hand slope became steeper and the right-side tail became elongated (i.e. that many more pupils would come to understand the phonic principles underlying the English alphabet code and make much more progress than traditionally expected). We were very pleased to see that this was indeed the case.

We have included a picture of the theoretical bell-shaped normal distribution curve below so that readers can compare it with the bar charts shown on page 29 for the Year One and Year Two reading data. (The curve would be obtained by joining up the centres of the tops of each bar in the charts, but obviously to get a really good curve you would need more data and to draw many more bars of much smaller groupings than the six-monthly intervals that we have presented.)

The Normal Distribution bell-shaped curve



We have previously commented that the results of traditional reading tests that have been made to conform to the Bell curve can only do so artificially, because those tests are measuring two variables that are only minimally correlated: (i) sight-memory for high frequency words; and (ii) accurate phonic decoding skills. We therefore predicted that pupils taught by Sounds~Write would demonstrate results on traditional reading tests that would differ from the normal distribution curve because they would be consistently dissuaded from sight-memorising any words at all. The Year One and Year Two bar charts of reading test results are shown overleaf on page 29 so that readers can compare their distributions. It is quite obvious that the Year One distribution conforms to the type of right-skewed distribution we predicted, while the Year Two results appear to be moving towards a rectangular distribution that bears very little, if any, resemblance to the normal distribution curve that should result from the testing. We see this as clear confirmation of our opinion that reading tests cannot be trusted to provide effective measurement of progress in literacy.

Reading Test data collected for Years One and Two

Table 22: Year One – Reading Data

Year Group	Gender	Number not achieving baseline* score	Number scoring at test baseline or above	More than 2 standard deviations below mean CA	1 to 2 standard deviations below mean CA	0 to 1 standard deviation below mean CA	0 to 1 standard deviation above mean CA	1 to 2 standard deviations above mean CA	More than 2 standard devs. above mean CA						
				(Reading Age – Chronological Age) differences grouped in six-monthly intervals above/ below mean											
				Over 30	25 – 30	19 - 24	13 – 18	7 - 12	0 – 6	0 – 6	7 - 12	13 - 18	19 - 24	25 - 30	Over 30
Y1	Boys	15	456	n/a	n/a	n/a	3	51	81.5	104.5	69	52	36	23	34
	Girls	2	446	n/a	n/a	n/a	6	20	64.5	122.5	87	59	29	22	38
	All	17	902	n/a	n/a	n/a	9	71	146	227	156	111	65	45	72
				145.5	138	176	176	138	84.5	40.5	15.5	5			

The above figures on the grey background show the normally expected distribution of Spelling Ages for a sample of 919 pupils.

Boys: Average Reading Age = 6y 11.2m; Average Chron. Age = 6y 3.1m; Average (RA – CA) = 8.1m. **Girls:** Average RA = 7y 1.0m; Average Chron. Age = 6y 3.3m; Average (RA – CA) = 9.5m

Whole Y1 sample: Average Reading Age = 7y 0.1m, Average Chronological Age = 6y 3.3m, Average (RA – CA) = 8.8m.

Table 23: Year Two – Reading Data

Year Group	Gender	Number not achieving baseline* score	Number scoring at test baseline or above	More than 2 standard deviations below mean CA	1 to 2 standard deviations below mean CA	0 to 1 standard deviation below mean CA	0 to 1 standard deviation above mean CA	1 to 2 standard deviations above mean CA	More than 2 standard devs. above mean CA						
				(Reading Age – Chronological Age) differences grouped in six-monthly intervals above/ below mean											
				Over 30	25 – 30	19 - 24	13 – 18	7 - 12	0 – 6	0 – 6	7 - 12	13 - 18	19 - 24	25 - 30	Over 30
Y2	Boys	1	245	n/a	n/a	5	10	22	35	33	35	38	27	28	12
	Girls	0	222	n/a	n/a	1	7	19	28	33	27	36	35	26	10
	All	1	467	n/a	n/a	6	17	41	63	66	62	74	62	54	22
				32	43	70	89	89	70	43	21	8	3		

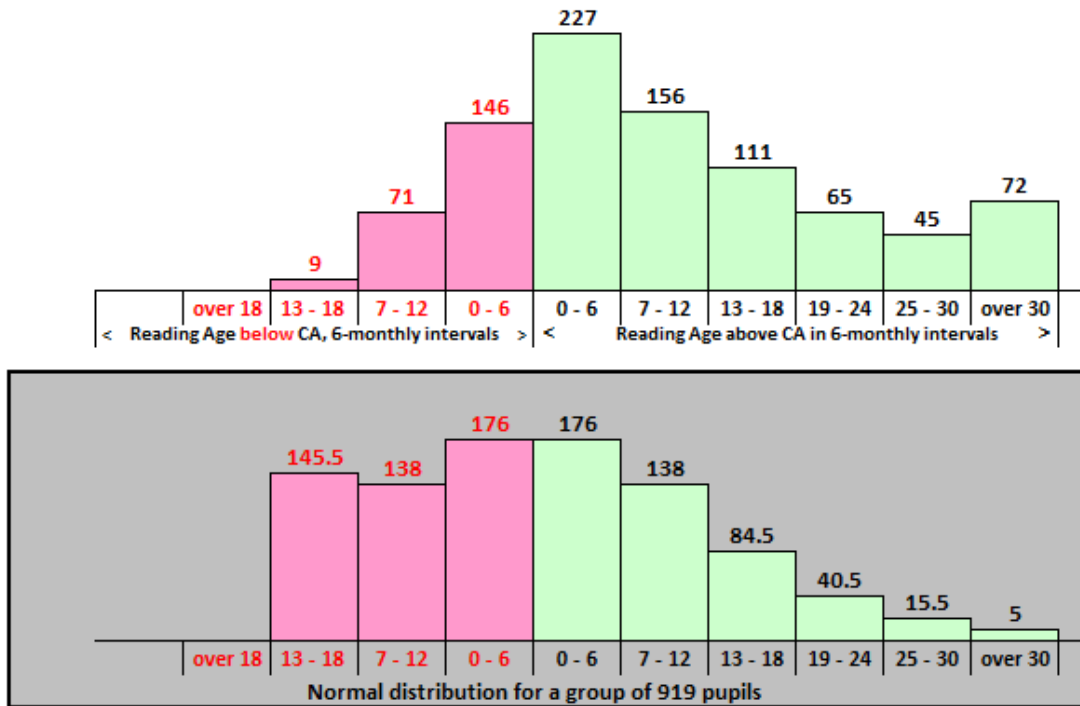
The above figures on the grey background show the normally expected distribution of Spelling Ages for a sample of 468 pupils.

Boys: Average Reading Age = 7y 11.4m; Average Chron. Age = 7y 2.4m; Average (RA – CA) = 9.1m. **Girls:** Average RA = 8y 2.2m; Average Chron. Age = 7y 3.7m; Average (RA – CA) = 10.4m

Whole Y2 sample: Average Reading Age = 8y 0.7m, Average Chronological Age = 7y 3.0m, Average (RA – CA) = 9.7m.

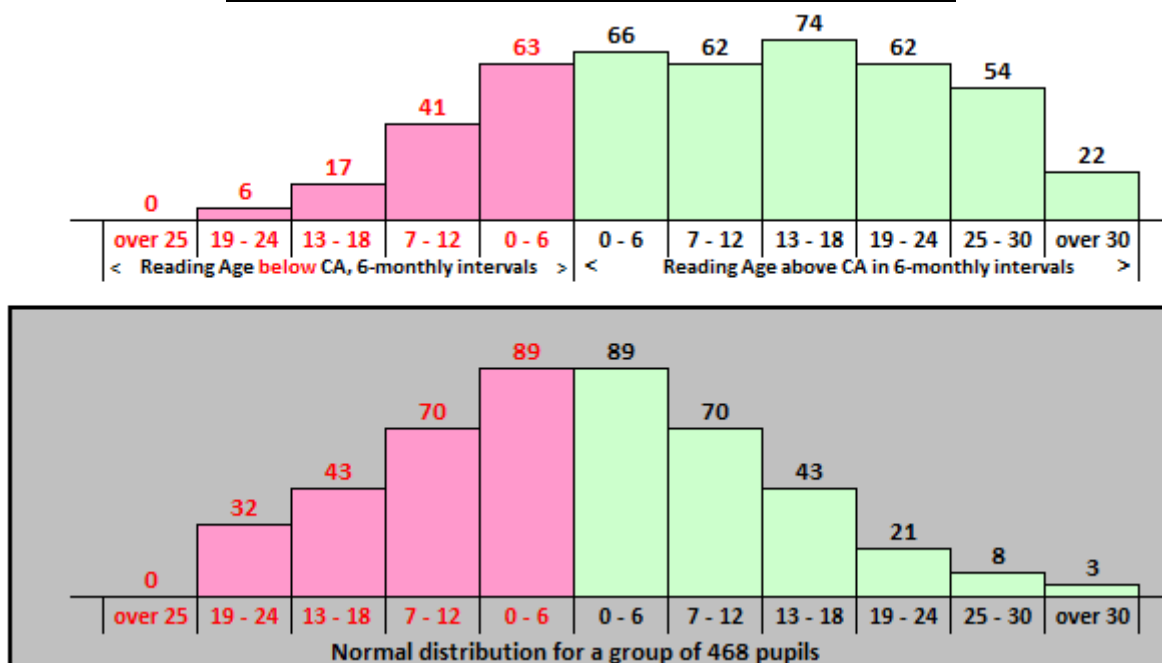
*Burt Reading Test (Rearranged Version): The **baseline** score (*i.e. the lowest possible*) is a Reading Age of 5 years 3 months.

Reading Test data at the end of Year One



Having decided that reading tests were poor measures of literacy development it was intriguing to find that the reading test results at the end of Year One, shown above, demonstrated exactly the type of distribution that we were hoping to see, i.e. normal distribution 'pushed' to the right, steeper slope on the left and elongated tail on the right. However, the problems that we had anticipated seeing with the distribution of Reading Ages appeared a year later in the end of Year Two results, shown below.

Reading Test data at the end of Year Two



The top chart is completely distorted compared to the expected normal distribution curve. Clearly it is not easy to make much sense of this distribution in terms of child development and learning theory beyond the fact stated earlier that the test has intertwined measurements of the opposing factors of accurate decoding and sight-memorisation of words. *(We have no reason to suppose that any other reading test might have performed better in this respect than the Burt.)*

We should say here that we would be rather surprised if our pupils' progress in literacy was not normally distributed. Indeed we are in little doubt that that it almost certainly is. Unfortunately, currently available reading tests have been artificially standardised in a statistical manner that makes them inappropriate and inaccurate for use with pupils who have been taught by genuine phonic principles. Appropriately structured new tests need to be developed to facilitate proper investigation into what is really happening in this fundamental and essential area of academic education.

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