

## The North Yorks Reading Intervention Project

### Background

The intervention study described here, and its subsequent 'roll-out' in North Yorkshire schools, had its origins in an earlier study for children with significant reading delay conducted in Cumbria in the early 1990s. In this study, Peter Hatcher, Charles Hulme and Andrew Ellis from the University of York compared three forms of intervention for 7-year-old poor readers. The first was phonological awareness training (P) based on the work of Lynette Bradley and Peter Bryant, the second was reading instruction (R) based on the Reading Recovery approach of Marie Clay and the third involved a combination of these methods (R+P). Each of the programmes was delivered by specially trained teachers in two individual 30-minute sessions a week for 20 weeks. The most effective intervention was the integrated R+P programme which incorporated training in phonological awareness and letter knowledge. In addition, metacognitive work made explicit the links between these skills in the context of writing. Crucially, sessions also included reading from carefully selected books, of appropriate difficulty for each individual child.

This work has formed the basis of two controlled intervention studies conducted by the Centre for Reading and Language at the University of York, in partnership with North Yorkshire Local Authority. Each of these studies has evaluated the efficacy of a modified form of the R+P approach, designed for delivery by specially trained teaching assistants. The modified Reading Intervention programme requires children to work on alternate days in groups of three, for a total of 25 x 20-minute sessions, and on intervening days individually with the teaching assistant for a total of 25 x 20-minute sessions.

### **The Reading with Phonology Programme (Hatcher, 2006)**

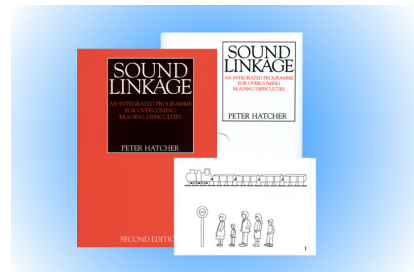
The Reading with Phonology programme (R+P) begins with an assessment of a child's reading and spelling strategies, to provide a picture of their strengths and weaknesses in tackling words that are difficult to read or write.

The main components of the *Reading with Phonology* teaching approach are:

- Training in letter knowledge
- Training to manipulate the sounds of words, particularly phoneme awareness
- Applying letter and sound knowledge to word reading and writing (phonics)
- Reading text at an easy level (for reinforcement, practice and confidence)
- Reading text at an instructional level (to practice decoding words in context, with teacher support)
- Writing a simple story (could be just one word or one sentence, with support).

The findings from the assessment are used to plan the first lesson. Lessons follow a set format and are delivered within an agreed time frame. Subsequently the content of each 20-minute lesson is tailored to take account of the pace at which the child is learning.

The training and support of teaching assistants is fundamental to the success of reading intervention. In all of the intervention work conducted through the Centre for Reading and Language, teaching assistants are supported fortnightly in a group tutorial throughout the intervention. They also receive one visit each term by a member of the research team who also offers telephone and on-line support when required.



### **Efficacy of the Reading with Phonology Programme<sup>1</sup>**

In the autumn term of 2004, the Centre for Reading and Language conducted a randomized controlled trial of the R+P programme targeting 5-6 year-old children. The trial began by screening 635 Year 1-children in 16 schools on a group test of spelling. Children who were identified on the basis of poor performance as being 'at-risk' were followed up (t1) and given individually administered tests of letter-sound knowledge, early reading vocabulary, receptive vocabulary and phoneme awareness. In each school, the 6 children

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<sup>1</sup> Sometimes referred to as 'Reading Intervention'

with the poorest literacy skills were identified. This 'screening+testing' procedure led to the identification of roughly the bottom 8% of the population for early reading development in these schools.

The 6 children identified within each school were allocated at random to receive the intervention for either a 20-week period (20-week Intervention group) or for a 10-week period (10-week Intervention group; these children acted as a 'waiting-list' control group for the first 10-weeks and then received the teaching during weeks 10-20).

After 10 weeks of daily intervention (t2), the children in the '20-week' intervention group had made gains of nearly 4 standard score points on a test of single word reading ability which was significantly more than controls in the 'waiting list' ('10-week') group who made negligible gains. After the subsequent 10 weeks (t3) when both groups had received the intervention, the '10-week' Intervention group had caught up with the '20-week' group (see Figure 1).

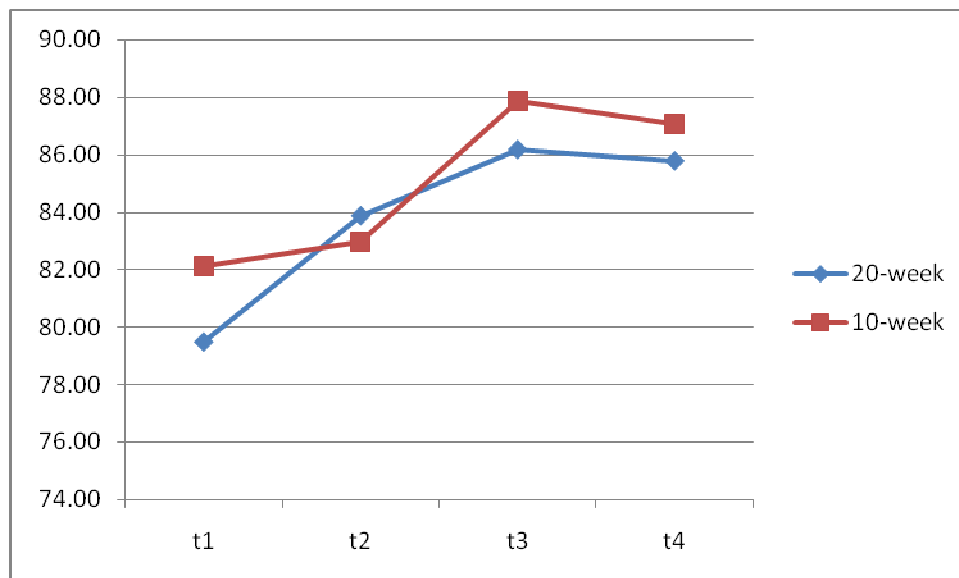


Figure 1. Performance on the BASII Reading Scale for the 20-week and 10-week (waiting control) groups between pre-intervention (t1) and post-intervention (t3) and at 11-month follow-up (t4) (standard scores)

The intervention as a whole (pooling across the 10- and the 20-week groups) had raised the average standard score for reading for these children from 81 to 87, as the result of approximately 25 hours of intervention delivered by a

teaching assistant. The 20-week group made an average gain of 7.8 SS points in 33.3 hours (.23 SS pts/hr).

The children who received the intervention were followed again (t4) 11 months after the intervention finished (69 children were available for re-assessment). As shown in Figure 1 <sup>2</sup> the gains they had made as a result of the intervention were maintained.

### Who benefits from the R+ P Intervention?

Seventy eight children<sup>3</sup> were identified as suitable recipients of the intervention. Because of the nature of the screening procedure, there was inevitably a range of reading levels represented in the children who were identified. Table 1 below shows the number of children within each of three ability bands across the sample as a whole:

BAS–II Word Reading Standard score < 80 ; severe reading problem

BAS–II Word Reading Standard score 81-90; moderate reading problem

BAS–II Word Reading Standard score >90; average range

	N	<80	81-90	>90
Pre-intervention (t1)	77	36%	56%	8%
Post-intervention (+20weeks; t3)	68	25%	34%	41%
Follow up (+11 months;t4)	68	29%	32%	38%

*Table 1. Percentage of children in each reading skill band at three time points*

As the Table 1 shows, there was a clear shift in the distribution of test scores over time. At the beginning of the intervention, 36% of the sample had severe reading problems; by the end, 29% did. Put another way, 38% were average

<sup>2</sup> On this figure, times 1,2,3 are pre-intervention, +10 weeks and +20 weeks respectively. Time 4 is follow up after 11 months. The '20-week' received intervention during weeks 1-20 between times 1 and 3; the '10 week' waiting control group received 10-weeks of intervention between times 2 and 3.

<sup>3</sup> In fact, 77 started the intervention

readers at the end of the intervention compared with 8% before the intervention. These are significant gains given the nature and severity of these children's early reading problems and the relatively brief intervention they received.

### Key Stage 1 results for children who received R+P interveniton

Key Stage 1 SATS scores were available from 75 of the children who received R+P intervention in 2004-5. We focus here on the results of the English reading and writing tasks (Table 2).

Attainment Level	Reading (%)	National Figures <sup>4</sup> (Reading 2006) (%)	Writing (%)	National Figures (Writing 2006) (%)
W	9	3	25	5
1	54	12	41	14
2C	25	13	33	21
2B	9	23	-	26
2A	1	23	2	20
3 or above	-	26	-	14

Table 2. Percent of children attaining each KS1 level compared with national figures for 2006

There is considerable variation in the Key Stage 1 results of children who received intervention one year earlier in Year 1. However, considering this cohort represented the bottom 8% of the population, it is encouraging that 35% reach the level of 2C or above for reading (and a similar number do for writing). For reference , the descriptor given for Level 2C reading is shown below:

*'More than 90% of passage read independently and mostly accurately. Some inappropriate strategies (e.g. sounding out familiar sight word). Reading word by word with pauses to confirm meaning'.*

<sup>4</sup> <http://www.dcsf.gov.uk/rsgateway/DB/SFR/s000672/index.shtml>

### Follow-up in Year 6

The cohort of children who received intervention in Year 1 was followed-up in December 2008 mid-way through their final year in primary school. Each child was administered the *BAS-II Word Reading* scale to provide a direct comparison with tests given in the first phase of the research. In addition, to provide an assessment of prose reading accuracy, fluency and comprehension, they were given the newly standardized *York Assessment of Reading for Comprehension (YARC) Passage Reading* test.

Fifty four children were traced and re-assessed (21 of the original sample had moved away). The attrition rate was relatively high (27%); however a series of analyses demonstrated that the children who remained did not differ from those lost to sample in BAS reading skill at any of the previous test points ; in fact, there was a trend for them to be doing better.

The findings of the follow-up assessments in Year 6 are given in Table 3, together with the mean reading attainment of the sample at the end of the intervention for comparison purposes.

	BAS Reading Post-intervention	BAS Reading Follow-up	YARC Accuracy	YARC Reading Rate	YARC Comprehension
Mean	86.4	88.8	98.3	88.4	96.8
SD	12.6	13.9	10.7	10.0	9.9

Table 3. Performance of the intervention children when re-assessed in Year 6.

As Table 3 shows, the reading attainments of the children who received intervention were pleasing; on average the children has maintained the gains they had made in reading attainment at the end of the intervention. Moreover although their reading fluency was somewhat below average, their prose reading accuracy and text comprehension skills were within the typical average range.

## Is the R+P intervention suitable for children who are dyslexic?

Rather than targeting individuals who had already been assessed as 'dyslexic' the intervention study described above followed a whole class screening procedure. An interesting question, therefore, is what proportion of the sample would fulfil typical criteria used to identify dyslexia?

Data were available from the intervention group at the beginning of the study on two key markers of dyslexia (phoneme awareness and letter sound tasks).

The data are as follows:

letter sound knowledge	mean = 15.82/26 (range 3-26)
alliteration	mean = 9.53/16 (range 3-16)
phoneme completion	mean = 2.71/8 (range 0-8).

Although there was variation in the group, it seems likely that many of the children could be described as 'at-risk' of dyslexia.

## Do all children respond to R+P intervention?

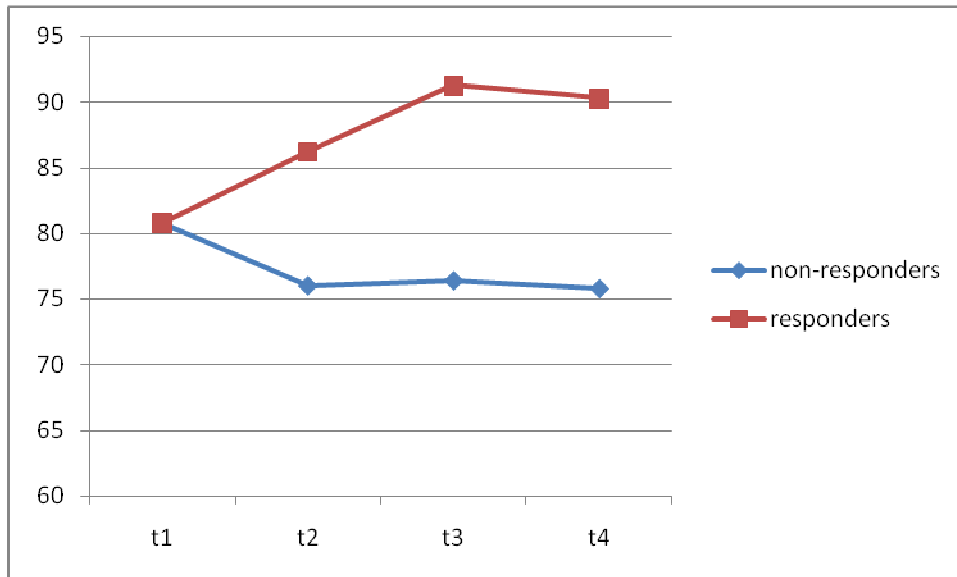
Definitions of dyslexia acknowledge that for a minority of children, reading problems are severe and persistent and response even to effective, well-implemented intervention is poor. In the R+P intervention study reported here 28% of the 20-week and 21% of the 10-week Intervention group had standard scores below 80 at the end of the intervention (2% of the Year 1 population that was sampled). Moreover, children varied in their responsiveness to the teaching they received and about a quarter could be defined as treatment 'non-responders'<sup>5</sup>. These children were typically those with more severe phonological impairments and poor vocabulary skills, and although their speed of processing was broadly within the normal range they tended to have problems in attention control.

Figure 2 shows the progress of the 'non-responders' in the intervention cohort against the progress of those who responded. Although most children showed

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<sup>5</sup> This term is used advisedly; the children had made gains in letter-sound knowledge and phoneme awareness but they showed no 'catch up' in terms of a gain in standard score on the reading test.

good progress in response to the intervention, the figure shows that those who were slow to respond had severe and persistent reading impairments.



*Figure 2. Performance over time of children who show poor response to effective intervention compared with that of responders*

### **R+P in North Yorkshire Schools**

Having demonstrated the efficacy of the R+P intervention when delivered by teaching assistants, North Yorkshire Local Authority began to implement the intervention programme throughout its schools and monitored its effectiveness.

In the first year of this implementation (2005-6), 50 teaching assistants and one teacher from 38 primary schools undertook a four-day training programme delivered by members of the local authority in six venues across the county (coordinated by the Consultant in Inclusion). Following training, the 'trainees' delivered the R+P programme to 142 children, the majority being children in Year 1.

Children received an average of 38 sessions in a 10-week period and the teaching assistants tested the children before and after they carried out the intervention. On average children made over 7 months progress in reading age during the 10-week period. Gains were also evident in writing levels which increased, on average, by 1.3 sublevels over the 10-week period.



In the second year of this implementation (2006-7), 102 teaching assistants from 92 schools undertook the four-day training programme. In addition, they received 4 or 5 follow-up tutorials while they were delivering the intervention. During this phase, the 'trainees' delivered the R+P programme to 148 children, with the number of sessions they received varying between 10 and 50, with an average of 34 sessions.



On average the children progressed from a reading age of 6 years 5 months to a reading age of 7 years 3 months. This amounts to an increase in progress of 10 months in reading age during the 10-week period. These gains were associated with gains in phoneme awareness and letter knowledge.

In the second year of the North Yorkshire 'roll-out' of the intervention programme, the overall costs averaged at £270.27 per child, £7.95 per session, or £27 per month of progress per child. According to the LA data, just over 70% of the children made more than 6 months progress in reading during the course of the 10-week intervention. Six children (4%) made little or no progress (less than 3 months) and can be considered in need of more prolonged or intensive support.

As reading skills increased, so did the confidence levels of the children.

*"S is more settled in class and much more willing to have a go at tasks.*

*....noticeable change in attitude – more switched on in literacy lessons. "*

Teachers also noticed differences in learning behaviour within the classroom and how less dependent the children were on adult support.

For more information, visit <http://www.york.ac.uk/res/crl/nyreadingintervention.html>