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Early intervention to prevent long-term literacy difficulties: the case of Catch Up Literacy

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Abstract

Problem: Recent research indicates that about 17% of school leavers have significant literacy problems, a proportion that has not changed significantly in the last 20 years. Literacy problems are associated with increased risk of poverty, unemployment, criminal conviction, and ill-health. Most adults with literacy problems had difficulties in reading from the early stages of schooling onwards. **Purpose of study:** The purpose of the study was the evaluation of an intervention for children with reading difficulties. Catch Up Literacy is a structured one-to-one literacy intervention for learners from 6 to 13 who are struggling to learn to read. It involves all aspects of the reading process: word recognition processes and text comprehension processes. It is targeted to the needs of individual learners, identified through a bank of formative assessments, and involves two individual 15-minute sessions per week. **Methods and Results:** (1) Data was obtained for 3134 learners, in 27 local authorities, who received Catch Up Literacy support, and who were tested with the Salford Sentence Reading Test at the beginning and end of the intervention. Mean Chronological Age at the start of intervention was 86.51 months and mean Reading Age was 64.23. The mean gain in Reading Age after 7.33 months was 18.5 months (ratio gain 2.74). An independent *t-test* analysis showed that the learners had increased their Reading Age far more than expected by the passage of time alone. A follow-up study of 185 children ten years after intervention indicated that they had maintained their gains. (2) A more controlled study was carried out with 87 pupils in Years 7 and 8 in six secondary schools in Nottingham, with a total of 87 participants (aged 12 and 13). Over 4.01 months, a ‘treatment’ group (*n* = 20) were given Catch Up Literacy support while a ‘control’ group (*n* = 67) received ‘matched-time support’ (additional literacy support of the teacher’s choice, but not Catch Up Literacy, for approximately the same amount of time). The learners receiving Catch Up support started with a mean Reading Age of 85.7 months, and made a mean gain of 13.10 months (ratio gain 3.27). The matched-time controls started with a mean Reading Age of 88.92 months, and made a mean gain of 5.57 months (ratio gain 1.39). An independent *t-test* analysis of Reading Age ratio gains showed that the learners receiving Catch Up support achieved higher ratio gains than the matched-time controls. **Conclusions and recommendations:** There is clear evidence for the effectiveness of Catch Up Literacy and, more generally, for the view that early intervention with children with literacy difficulties may lead to significant lasting improvement, which may help to reduce the incidence of literacy difficulties in later life. Further research is needed to compare it to other interventions and to investigate factors that may influence the level of effectiveness, such as SES, initial chronological age, and initial Reading Age. There should also be more extensive and longer-term follow-up into adult life.

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1. Introduction

Around 17% of eight-year olds in the UK, approximately five children in an average class, have reading difficulties – often not severe enough to entitle them to statutory additional learning support, but nonetheless sufficient to restrict their access to the curriculum. Without additional support, these struggling readers fall further behind their peers year-on-year. The consequences are well-documented and wide-ranging: long-term poor academic achievement, low self-esteem, lower motivation to read, disengagement with the learning process, behavioural problems, reduced employment prospects and the possibility of social exclusion (Bynner & Parsons, 1997; Reynolds, Wheldall, & Madelaine, 2010; Thomas & Davis, 1997).

Effective approaches to supporting reading development have been extensively researched (for summaries see, for example, National Reading Panel, 2000; Rose, 2009; Rowe, 2005). Systematic phonics, word recognition, fluency, comprehension, vocabulary, oral language skills and working memory have all been identified as key to the acquisition of reading skills, as has an holistic approach to high quality reading instruction. However, in his review ‘What works for pupils with literacy difficulties’, Greg Brooks notes that ‘although good classroom teaching is the bedrock of effective practice, most research suggests that children falling behind their peers need more help than the classroom normally provides. This help requires coordinated effort and training’ (Brooks, 2007 p. 31).

1.1. *Catch Up Literacy*

Catch Up Literacy was developed by Diana Bentley, Suzi Clipson-Boyles, Wayne Holmes, Julie Lawes, Dee Reid, and Sue Walker, based on research at Oxford Brookes University reported in 2000 (Clipson-Boyles). It is a book-based, structured, one-to-one literacy intervention, that is grounded in research (in particular, that of Bentley & Reid, 1995; Clay, 1991; Goswami, 1994; Medwell, 1991; Stanovich, 1980), and which addresses both word recognition (including phonics) and language comprehension for children who are struggling to learn to read. In other words, it is an intervention for those children who have experienced some years of reading instruction but who still have acute reading difficulties – rather than for children who are beginning to learn to read. Ensuring that the intervention was both practical and sustainable was seen as being critical to its success, on the premise that if it wasn’t sustainable, no matter how good it was, few would benefit. Accordingly, Catch Up Literacy requires only two fifteen minute sessions of one-to-one individual support per week and can be delivered by classroom assistants, or teachers, who have attended training.

Catch Up Literacy is divided into four stages. First, diagnostic/formative assessments to identify a focus for intervention targeted to the needs of the individual child. Second, choosing a book of an appropriate level of difficulty, based on an outcome of the assessments. Third, two 15 minute individual sessions per week, in which the child reads from the chosen book and completes some linked writing that addresses identified miscues. Four, ongoing monitoring of progress to ensure that the intervention continues to target the individual child’s changing needs. Throughout the four stages of Catch Up Literacy, the emphasis is on providing effective personalized learning support for the individual – enabling learning through success within a clearly structured process.

1.1.1. *Stage 1: Formative assessments*

Research has shown that children’s attitudes to reading play an influential role in their progress in learning to read (Medwell, 1991; Petscher, 2010). Accordingly, the Catch Up Literacy formative assessments (Catch Up Literacy Stage 1) begin with an informal attitudinal assessment: the reading interview. The aim is to provide an understanding of the child’s attitudes to, and perceptions and experiences of, reading which informs the delivery of the intervention, and which is revisited as part of the ongoing monitoring. Stage 1 continues with assessment of the child’s capabilities with respect to a range of teaching approaches that they may have encountered during their schooling thus far, including: sight word knowledge (high frequency words), phonic knowledge (including grapheme/phoneme matching, and segmenting and blending phonemes), and spelling knowledge (which high frequency words are they able to spell).

1.1.2. Stage 2: Selecting an appropriate book

Struggling readers need books that are sufficiently challenging but not frustrating, with 80% – 90% of the words known to the reader (Kress & Johnson, 1965); that do not hinder fluency or comprehension or create negative attitudes; and which are appropriate to their age and interest. All too many resources provided to struggling readers have been developed for beginning readers, that is they are at the right level of difficulty for struggling readers but with stories and illustrations designed for much younger children. Accordingly, Catch Up have graded approximately 7000 books into twelve levels of difficulty referred to as the Catch Up Literacy levels and have identified each book's age appropriateness – the aim being to enable supporting adults to select a book appropriate to the child's age that the child can read with at least 90% accuracy. The Catch Up Literacy levels are also used as a proxy indicator of achievement and progress.

1.1.3. Stage 3: The individual session

Catch Up recommend that the child receiving Catch Up Literacy support is timetabled for two 15 minute individual sessions per week, during which they are withdrawn from their class and given focused individual support. Each individual session is divided into three parts: a prepared reading (3 minutes); the child reads and the text is discussed (6 minutes); and a linked writing activity (6 minutes). This clear structure aims to help keep the learning on task and purposeful. During the prepared reading, the supporting adult takes the child briskly through the selected book, giving them an overview of the text, page by page, so that when they read it they can concentrate on reading for meaning (Stanovich, 1980). Throughout, the aim is to engage the child in the process of understanding the text. The aim of the second part of the individual session, during which the child reads the text out loud and the text is discussed, is to give the supporting adult the opportunity to identify which reading strategies the child is using, to encourage the child to take responsibility for tackling any less familiar words, and to ensure that the child understands the content and can infer meaning. At appropriate points during the reading and immediately afterwards, the child is encouraged to discuss and reflect upon what they have read – so that they are more likely to remember to reflect on meaning when they are reading independently. The final part of the individual session, the linked writing, provides an opportunity for focused support based on miscues and enables the child to benefit from the reciprocal gains of reading and spelling (Clay, 1991). The supporting adult first selects a suitable word, usually one with which the child had difficulty when reading the text, which would be useful for them to be able to read and spell and which represents an appropriate next step of learning. In order to provide the child with a clear model, the selected word is written out by the supporting adult and underlined in a sentence. The child then undertakes one of a range of brief tasks, depending on whether the selected word is an irregular word or has a phonic feature needing further practice, which concludes with the child writing the selected word, using the 'look, say, cover, write, check' procedure (Peters & Cripps, 1978). Finally, the child writes the word in the context of the original sentence.

1.1.4. Stage 4: Ongoing monitoring

Supporting adults are encouraged to monitor the intervention regularly, for example, the child's progression through the Catch Up Literacy levels. For those children who are not making expected progress, the information can be used by the class teacher to inform decisions about additional or alternative support.

2. Methods and Results

2.1. Individual data for 3134 children from England and Wales

The individual data reported here (Table 1) was provided by school and local authority staff from 27 English and Welsh local authorities, and is centred on pre- and post-intervention standardized reading tests (the Salford Sentence Reading Test) conducted by teaching staff, of 3134 children identified as 'struggling readers' who received Catch Up Literacy support between 2002 and 2010. The intervention was being used to support struggling readers in schools rather than as the focus of a research study – and there is no explicit control group. All of the submitted data, excluding outliers (defined as cases having an absolute *z-score* greater than 3.29, Field, 2009), that included valid pre- and post-intervention Reading Ages and a valid figure for the duration of the delivery of the intervention have been included.

Table 1: Individual data for 3134 children receiving Catch Up Literacy support

	n	3134
At start of intervention	Mean age in months	86.51 (SD = 10.09)
	Mean Reading Age in months	64.23 (SD = 13.23)
Mean duration of intervention in months		7.33 (SD = 2.30)
At end of intervention	Mean Reading Age in months	82.73 (SD = 15.76)
	Mean gain in Reading Age	18.50 (SD = 9.99)
	Ratio gain*	2.74 (SD = 1.74)

* Average of individual ratio gains (gain in Reading Age divided by duration of intervention).

An independent *t-test* analysis of the mean gain in Reading Age achieved by the participating children and the duration of intervention (which stands as proxy for the gain that would be expected of a typically achieving child) showed that the participating children had increased their Reading Age more than would be expected of a typically achieving child ($t = 61.00$, $df = 3463.44$, $p < .001$). The mean ratio gain (the mean of individual gains in Reading Age divided by duration of intervention, Topping 1987) was 2.74 (SD = 1.74); and the difference between the gain in Reading Age and the duration of intervention divided by the pooled standard deviation (effect size) was very large ($d = 1.54$).

2.2. Follow-up study of 185 children who received Catch Up Literacy support in 2003

The progress of a subgroup of children from the main dataset ($n = 185$, from Rhondda Cynon Taff and Norfolk local authorities) has been tracked since they received Catch Up Literacy support in 2003 when aged approximately 7 years (data provided by schools). Assessed one year after receiving Catch Up Literacy support, the subgroup of children had made average Reading Age gains of 12 months (i.e. they had achieved the progress expected of typically achieving children); assessed when they were 10 years old, 67% of the children achieved Level 4 (the 'expected' UK National Curriculum Level for their age) or higher in their Key Stage 2 reading tasks; and assessed in June 2010 (using the Salford Sentence Reading Test, the same test by which they were originally assessed), seven years after receiving Catch Up Literacy support, 89% of the children achieved the test's ceiling score of 10.2 years – the age at which typical children have more or less achieved a level of reading competence that enables them to participate fully in the curriculum, such that they no longer need intervention (Madelaine & Wheldall, 2002).

2.3. Individual data including a control group for 87 children from the City of Nottingham

In September 2008, the City of Nottingham local authority undertook a trial of Catch Up Literacy in six secondary schools, with a total of 87 participants (aged twelve to fourteen) all of whom had been identified by their teachers as requiring additional literacy support (Table 2). The participating children were randomly assigned to a 'treatment' group ($n = 20$), who were given Catch Up Literacy support, or to a 'control' group ($n = 67$), who received matched-time support (additional literacy support of the teacher's choice, but not Catch Up Literacy, for approximately the same amount of time). Two of the children receiving matched-time support left before the end of the trial and are excluded from the data.

Table 2: Results for 85 children from the City of Nottingham local authority

	n	Children receiving Catch Up support 20	Children receiving matched-time support 65
At start of intervention	Mean Reading Age in months	85.7 (SD = 9.43)	88.92 (SD = 11.86)
Mean duration of intervention in months		4.01	4.01
At end of intervention	Mean Reading Age in months	98.80 (SD = 13.88)	94.49 (SD = 12.85)
	Mean gain in Reading Age	13.10 (SD = 8.71)	5.57 (SD = 8.73)
	Ratio gain*	3.27 (SD = 2.17)	1.39 (SD = 2.18)

* Average of individual ratio gains (gain in Reading Age divided by duration of intervention).

An independent *t-test* analysis of Reading Ages at the start of the period of intervention showed that there was no statistical difference between the two groups ($t = 1.71$, $df = 83$, p n.s.). An independent *t-test* analysis of Reading Age ratio gains achieved by the treatment and control groups showed that the children receiving Catch Up support achieved higher ratio gains than those children who received only matched-time support ($t = 3.38$, $df = 31.67$, $p < .005$): while the mean ratio gain for the Catch Up group was 3.27 (SD = 2.17), the mean ratio gain for the matched-time group was 1.39 (SD = 2.18). In addition, the effect size (the difference between the ratio gains of the two groups divided by the pooled standard deviation) was large ($d = 0.86$).

3. Conclusions and recommendations

The findings reported here indicate that Catch Up Literacy, an intervention targeted to children's specific strengths and weaknesses in reading, when implemented in schools in the UK, can lead to substantial improvements and that those improvements are sustained. Children who received Catch Up Literacy intervention made two and a half times as much gain over time as would be expected of typically achieving children on the basis of the passage of time alone. This is particularly striking as the participating children were selected because they were struggling to learn to read, so would have been expected to make less progress than typically achieving children. Such gains suggest that there is little neurologically 'wrong' with most of the participating children but rather their reading ability has been impaired for some other reason – possibly contextual or socio-economic factors.

The findings also suggest that features of the intervention, over and above the amount of individual attention, play a critical role – since the children given the Catch Up Literacy intervention made significantly more progress than those who were given equal time on other literacy intervention. The latter did make more progress than would be expected by the passage of time alone, which suggests that individual attention alone can help improve the performance of low achievers, but such effects were not nearly as great as the very marked effects of the more targeted intervention. Nevertheless, it should be remembered that the analyses reported here are derived from data collected by school and local authority staff – such that, further research, using a randomised controlled trial methodology, would be welcome. In addition, further research is required to determine which particular features of the intervention – its systematic structure and approach, its targeting of individual needs, the quality of the training or the emphasis placed on management – are key to its effectiveness. Further research is also needed to compare Catch Up Literacy to other interventions and to investigate factors that may influence the level of effectiveness, such as SES, initial chronological age, and initial Reading Age. There should also be more extensive and longer-term follow-up into adult life.

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