

What Works for Struggling Readers?

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Abstract

This review summarises a report evaluating research on the achievement outcomes of alternative approaches for struggling readers in primary school:

- one-to-one tutoring,
- small group tutorials,
- classroom teaching process approaches, and
- IT.¹

Study inclusion criteria included the use of randomised or well-matched control groups, study duration of at least 12 weeks, and the use of valid measures independent of treatments. A total of 96 studies met these criteria.

The key findings of the review were that:

- One-to-one tutoring works. Teachers are more effective as tutors than teaching assistants or volunteers, and an emphasis on phonics greatly improves tutoring outcomes.
- Although one-to-one phonetic tutoring for children aged six and seven is highly effective, effects last into the upper primary years only if classroom interventions continue beyond this initial period.
- Small group tutorials can be effective, but are not as effective as one-to-one instruction by teachers or teaching assistants.
- Classroom teaching process approaches, especially co-operative learning and structured phonetic models, have strong effects for low achievers (as well as other pupils).
- Traditional IT programmes have little impact on reading.

Taken together, the findings support a strong focus on improving classroom teaching and then providing one-to-one, phonetic tutoring to pupils who continue to experience difficulties.

Full report

This review is adapted from Slavin, R.E., Lake, C., Davis, S., & Madden, N. (2009), *Effective Programs for Struggling Readers: A Best Evidence Synthesis*, Baltimore MD: Johns Hopkins University, Center for Research and Reform in Education (CRRE). The full report is available at www.bestevidence.org.uk.

¹ Slavin, R.E., Lake, C., Davis, S., & Madden, N. (2009), *Effective Programs for Struggling Readers: A Best Evidence Synthesis*, Baltimore MD: Johns Hopkins University, Center for Research and Reform in Education (CRRE).
www.bestevidence.org.uk.



Background

The importance of getting children off to a good start in reading cannot be overstated. Success in primary school is virtually synonymous with success in reading, and those children who lack the ability to read as they move to secondary education inevitably face problems in every subject as a result. Nevertheless, a significant number of children fail to reach the minimum standards for English at the end of primary school.²

The past 25 years have seen extraordinary developments in research, policy, and practice relating to programmes that help struggling readers. This has created a sense of optimism that children who struggle to read can quickly be brought back into the mainstream. Moreover, as pupils who fail to read in their first years of school incur so many costs to the education system in later years (such as special educational support), even expensive interventions can be justified on cost-effectiveness grounds if they work,³ while at the same time preventing damage to young peoples' lives.

In the UK the extent of the problem became clear in the early 1990s when national testing was introduced for 7, 11 and 14 year-olds. This revealed that just over half of pupils were reaching the level expected for their age in English.⁴ A Literacy Taskforce was created in 1996, and in 1998 the *Primary Literacy Strategy* was introduced in response to the findings. Although never statutory, schools were expected to implement the strategy, primarily through a daily Literacy Hour that focused on whole-group and class teaching.

Despite initial success, overall achievement rose only slightly over subsequent years, and many children failed to progress at all. Although it had been hoped that the whole-class teaching of the *National Literacy Strategy* would benefit all children, additional support was introduced in 2001 for those children who needed it. Struggling readers were offered three 'waves' of intervention. Wave 1 is the effective inclusion of all pupils in a high quality, daily literacy hour and mathematics lesson. Wave 2 is small group, low-cost intervention – for example 'booster classes', 'springboard programmes' or other programmes linked to the National Strategies. Wave 3 is specific, targeted intervention for pupils identified as requiring special educational needs support.⁵

A key component of the UK policy for struggling readers is *Every Child a Reader*, based on the *Reading Recovery* programme. *Reading Recovery* provides extensive training to tutors who work one-to-one with children in the first years of school who are experiencing problems with learning to read. Following its development in New Zealand in the mid 1980s, *Reading Recovery* gave hope across the English-speaking world that tutors with extensive training could prevent reading failure for a substantial proportion of children who were failing in their early years of school. In the UK, a three-year pilot in over 200 schools was followed by a nationwide rollout in 2006, to give 30,000 Key Stage 1 pupils access to this additional, year-long support by 2010/11.

The other most prominent intervention developed on a national scale is *Making Good Progress*. This programme will offer one-to-one tuition to 10% of pupils in Key Stage 2 and 3 from 2010, with a budget of around £120 million annually. Data collected from a pilot scheme found improvements

² In 2008 19% of pupils failed to achieve level 4 or above in the Key Stage 2 English test. Source: DCSF (NB Average for England shown on each local authority table) http://www.dcsf.gov.uk/cgi-bin/performanceables/group_08.pl?Mode=Z&No=815&Base=p&Type=LA&Begin=s&Phase=p&Year=08

³ Gross, J. et.al (2006), *The Long Term Costs of Literacy Difficulties* (Report by the KPMG Foundation)

⁴ 56.3% of pupils achieved Level 4 or above in English in 1996 (the first year that the statistics are available). Source DCSF (NB Average for England shown on each local authority table) http://www.dcsf.gov.uk/cgi-bin/performanceables/archives/shleap_96?lea=815&type=p

⁵ DCSF, (2002), *Targeting Support: Managing NNS/NLS Intervention Programmes*, p2.



in reading and writing in Key Stage 2 and 3,⁶ and so far 3% of children have had access to the programme.

Despite ongoing development under the *National Literacy Strategy* (and the succeeding *National Primary Strategy*, which combined the literacy and numeracy strands from 2003), the government's target of 85% of children reaching level 4 in English by the time they left primary school has not been achieved.⁷ In response, 2009 saw a major shift in policy. Although over £2 billion has been spent on the combined strategies, it has been announced that from 2011 schools will no longer have to implement them. They will instead be encouraged to work together to find local solutions to improve their pupils' basic skills.

As individual schools become increasingly responsible for choosing and implementing effective methods for struggling readers, the evidence base for alternative approaches takes on greater importance. Schools will remain accountable for pupils' learning, and educators will want to do what is best for them. There are many strategies that have long been used, the most common being:

- one-to-one tutoring by teachers, teaching assistants, and volunteers,
- small group tutorials,
- improvements in classroom teaching methods, and
- instructional technology.

However, within each of these categories there are many quite different approaches. It has been difficult for educators to access clear summaries of the evidence on alternative strategies, and in particular it has been difficult to make comparisons of the strength of evidence supporting each programme of practice.

The aims of the review

This review seeks to summarise evidence of effectiveness of alternative approaches to teaching struggling readers, and uses a common set of procedures to evaluate the evidence and to summarise it for educators and policy makers.

The review presents evidence of effectiveness for individual programmes for struggling readers in primary schools. It also addresses broader questions, for example we wanted to know about the long-term impacts of early intervention, about the effects of tutoring by certified teachers as opposed to teaching assistants and volunteers, and whether small group interventions can be as effective as one-to-one tutoring. We also wanted to understand the importance of a focus on phonics and phonological awareness in reading interventions, how to build on success in the early years to maintain gains into secondary schools, and how improved classroom programmes and technology might contribute to the success of struggling readers.

⁶ PricewaterhouseCoopers LLP (2008), *Evaluation of the Making Good Progress Pilot: Interim report*.

⁷ At Key Stage 2, the Public Service Agreement target is for 85% of 11 year olds to achieve Level 4 or above in English and mathematics by 2006, with this level of performance sustained to 2008. Source: DCSF <http://www.standards.dfes.gov.uk/ts/informationcentre/nattar/>



Review methods

An exhaustive search for potentially relevant research considered hundreds of published and unpublished articles. The review included studies from all countries that were available in English and met the following criteria:

- Schools or classrooms using each programme had to be compared to control groups (where pupils continued to be taught as normal). Experimental and control groups could be assigned at random (preferred) or by matching.
- Experimental and control groups had to be well matched (within ½ standard deviation).
- Study duration had to be at least 12 weeks.
- Outcome measures had to assess the reading content being taught in control as well as experimental classes.
- Pupils had to be in Years 1-6 in primary schools (or the equivalent outside the UK), and had to be reading below age-level expectations.

Outcomes of individual studies are expressed as effect sizes, the proportion of a standard deviation by which the experimental group out-performed the control group (after adjusting for any pretest differences). Effect sizes of +0.20 or more are generally considered educationally significant.

Key findings

A total of 96 studies met the inclusion criteria. Only three took place in the UK; two in Australia and two in Canada. 89 studies took place in the US.

The key findings of the review were that:

- One-to-one tutoring works. Teachers are more effective as tutors than teaching assistants or volunteers, and an emphasis on phonics greatly improves tutoring outcomes.
- Although one-to-one phonetic tutoring for children aged six and seven is highly effective, effects last into the upper primary years only if classroom interventions continue beyond this initial period.
- Small group tutorials can be effective, but are not as effective as one-to-one instruction by teachers or teaching assistants.
- Classroom teaching process approaches, especially co-operative learning and structured phonetic models, have strong effects for low achievers (as well as other pupils).
- Traditional IT programmes have little impact on reading.



Findings by category

We grouped reading interventions into six categories: one-to-one tutoring by teachers, one-to-one tutoring by teaching assistants and volunteers, small group tutorials, classroom teaching processes, classroom teaching processes with tutoring, and IT.

1. One-to-one tutoring by teachers

One-to-one teaching from qualified teachers and reading specialists is the gold standard among interventions for struggling readers. It is the most expensive solution, but the expense may be justified if it can make a substantial difference to children at a critical point in their reading development and therefore reduce later needs for special education or remediation.

Reading Recovery is by far the most widely researched and widely used tutoring programme in the world. Originally developed in 1985 in New Zealand by Marie Clay, *Reading Recovery* provides extensive training, observation, and feedback to qualified teachers, who provide daily 30-minute lessons to the lowest 20–30% of children in their first years of primary school until they are reading at the expected level for their age. In general, teachers work with about four children during half of each school day and teach a normal class for the other half of the day. A *Reading Recovery* session involves

- re-reading a familiar book,
- independent reading of a text at the child's level,
- teaching of letter knowledge,
- composing and writing a sentence,
- re-constructing a cut-up sentence, and
- introducing a new book.

The books are levelled readers with predictable text. Over the years, *Reading Recovery* has added more of an emphasis on phonics and decoding skills. Teacher training for *Reading Recovery* involves about 75 contact hours and includes live observations through a one-way glass screen and feedback from expert teacher leaders. The training takes place over an entire school year concurrent with practice with children.

Across all 19 qualifying studies the overall weighted mean effect size was +0.38. However, although the outcomes for *Reading Recovery* were positive, they were less so than might have been expected. Across 8 studies included in the report, the weighted mean effect size for *Reading Recovery* was only +0.23. It is possible that the current form of *Reading Recovery* is more effective than those evaluated in the 1980's and '90's due to its increased emphasis on phonics. Indeed, the only qualifying study of *Reading Recovery* recent enough to involve the newer form of the programme found substantial positive effects. This was a London study, conducted in 2008, in which 21 high-poverty schools using *Reading Recovery* were matched with 21 control schools. Effect sizes at the end of Year 1 were +0.98 for the British Abilities Scale Word Reading and +0.79 on Word Reading and Phonics Skills. A one-year follow-up found continuing effects of +0.61 on Progress in English 7. An earlier UK study also found positive effects of Reading Recovery, but these positive effects were not maintained over time.

In the years since *Reading Recovery* was introduced, many other one-to-one tutoring programmes have been developed and evaluated. These include programmes such as *Auditory Discrimination in Depth*, *Early Steps/Howard Street Tutoring*, *Reading Rescue*, and *Targeted Reading Intervention*. The 11 studies of these programmes had a weighted mean effect size of +0.60.



2. One-to-one tutoring by teaching assistants and volunteers

One-to-one tutoring by certified teachers is expensive, and in high-poverty communities with shortages of teachers, allocating qualified staff to small numbers of children may be hard to justify. For those reasons, many schools have long used teaching assistants or volunteers as tutors, usually with materials specifically designed for this purpose.

The effects seen for teaching assistants as tutors using structured and intensive programmes pose a real challenge to the idea that only certified teachers can be effective tutors. The overall effect size for the 11 studies (+0.38) is higher than the mean for *Reading Recovery*, although much lower than the effects for phonetic tutoring by teachers (+0.50). What these findings imply is that schools might use a mix of teachers and teaching assistants as tutors, using the qualified teachers as leaders and to work with the most difficult children.

Effect sizes for volunteer tutors averaged only +0.16, but excluding two studies in which tutoring was given only once or twice a week, the mean for structured, phonetic programmes was +0.50.

3. Small group tutorials

The most common form of supplementary teaching for struggling readers is additional teaching in small groups, typically 30–45 minutes daily. Small group tutorials are potentially more cost-effective than one-to-one tutoring from teachers, because several children are taught at the same time, and the group setting creates possibilities for children to learn from each other as well as from the teacher. On the other hand, small group teaching can simply offer more of the same type of teaching that has already failed to work in the classroom. Furthermore, it can be difficult to co-ordinate with normal lessons, and does not allow teachers to tailor teaching to pupils' needs as much as one-to-one instruction does.

A total of 20 studies evaluated 18 different models of small group tutorials. 16 of these used random assignment to conditions. The overall mean effect size was +0.31.

It is important to note that the studies that met the inclusion criteria were all named programmes with extensive training, materials, and other supports, and a strong emphasis on phonics.

4. Classroom teaching process approaches – changing the way the teacher teaches

One potential solution for many struggling readers is to adapt the way that teachers conduct their normal lessons. Indeed, similar reviews on beginning reading programmes and primary reading programmes have shown that classroom teaching process programmes were the most effective approaches for children in general. Moreover, the inclusion of various forms of co-operative learning and phonics-oriented class programmes could be particularly beneficial for pupils who would otherwise have difficulty in learning to read. Of course, the use of effective classroom strategies does not preclude individually targeted interventions for the (hopefully small number of) children who may still need them.

The effect sizes across 16 studies of classroom teaching process programmes (one randomised and three randomised quasi-experiments) were very positive for pupils at the lowest performance levels in their classes. The weighted mean effect size was +0.56, similar to the findings for one-to-one phonetic tutoring.

These effects were markedly more positive for low achievers than they were for pupils on average.⁸ Eight of the 16 studies involved forms of co-operative learning (*CIRC*, *PALS*, and same-age tutoring), and the mean for these was +0.58. Other particularly promising effects were found

⁸ Slavin et al, 2008, in press.



for programmes that utilise structured, systematic, phonetic approaches to reading instruction: *Direct Instruction*, *Project Read*, *RAILS*, and *Precision Teaching*.

5. Classroom teaching process with tutoring

This category includes research on a single programme, *Success for All*, which provides extensive school staff training and materials to improve all aspects of school organisation and functioning. *Success for All* focuses in particular on those aspects relating to reading, and also provides tutoring to struggling children, mostly in Year 2. The classroom interventions use a structured, fast-paced approach with a strong emphasis on co-operative learning, phonics, meta-cognitive skills, and frequent assessment. Parent involvement and interventions for behaviour and other non-academic problems are also emphasised. In contrast to one-to-one tutoring programmes such as *Reading Recovery*, which provide intensive tutoring during Key Stage 1 but no intervention afterwards, *Success for All* continues to provide classroom-level interventions (though not tutoring) throughout primary school.

The weighted mean effect size for the lowest achievers in *Success for All* across 9 qualifying US studies was +0.52, similar to the effect size for phonetic tutoring programmes. Furthermore, most of the *SFA* studies provided the programme over at least a three-year period, and generally found stable or increasing effect sizes over the years. This is in contrast to the findings of long-term follow-ups of one-to-one tutoring alone without classroom interventions after tutoring.⁹

6. IT

Over the past 30 years, one of the most common solutions for pupils who are struggling to learn to read is to give them computer-assisted instruction software. Modern IT programmes adapt to children's specific needs and give them activities with graphics and exciting elements that can supplement normal classroom teaching. However, previous reviews of research on primary IT applications in reading find few positive effects.

Across 14 qualifying studies (5 randomised), IT had minimal impacts on the attainment of struggling readers. The weighted mean effect size was only +0.09.

⁹ NB Two authors of this review, Robert Slavin and Nancy Madden, are involved with the development of the *Success for All* programme. A third, Susan Davis, works for the Success for All Foundation.



Cross-cutting issues

The importance of phonics

Across all categories, almost all successful programmes have a strong emphasis on phonics. One-to-one tutoring programmes in which teachers were the tutors had a much more positive weighted mean effect size (+0.69 in 9 studies) if they had a strong phonetic emphasis. One-to-one tutoring programmes with less of an emphasis on phonics, specifically *Reading Recovery* and *TEACH*, had a weighted mean effect size of +0.23 (NB *Reading Recovery* now has more of an emphasis on phonics).

Long-term effects of tutoring

A key part of the argument for intensive one-to-one tutoring for children struggling to read in the early years of primary school is that it can not only bring most struggling readers up to their reading age level, but also that they will remain confident readers from then on. The cost-effectiveness argument for very expensive programmes such as *Reading Recovery* makes the case that the expense is justified by reductions in the need for remedial services or retentions in later years.

Surprisingly, few long-term follow-ups of the outcomes of early tutoring have been done, but the existing evidence *does not* support the contention that successful early tutoring has long-lasting effects. The best study of these long-term outcomes was reported by Hurry & Sylva in 2007, following six- and seven-year-olds in London who received *Reading Recovery*¹⁰. At the end of their tutoring year, the *Reading Recovery*-tutored children scored substantially better than a matched group of children who were not tutored (ES=+0.85). However, a year later, at age eight, the effect size dropped to +0.40, and then to +0.15 at age ten.

In contrast, numerous three- and four-year longitudinal studies have found continuing positive effects of *Success for All* over time. The comparison of these longitudinal studies suggests that tutoring in the early years of school *can* have substantial and lasting effects *if* the tutoring is followed up with improvements in teaching throughout primary school.

Teachers vs. teaching assistants and volunteers as tutors

The cost of having qualified teachers tutoring struggling readers is prohibitive for many schools, so tutoring is often provided by teaching assistants. But can teaching assistants do as well as teachers?

The outcomes of this review suggest that teaching assistants can obtain good results with struggling readers, with a mean effect size of +0.38 in 11 studies. For volunteers it was +0.16 in 7 studies (but excluding two studies in which volunteers tutored only once or twice a week, the mean was +0.50).

The overall effects for teaching assistants are similar to those found for all studies of one-to-one tutoring by teachers (ES=+0.38). However, almost all of the teaching assistant tutoring studies involved programmes with a strong phonetic emphasis, so a better comparison is between phonetic tutoring by teachers (ES=+0.69) and phonetic tutoring by teaching assistants (ES=+0.38).

¹⁰ Hurry, J., & Sylva, K. (2007). Long-term Outcomes of Early Reading Intervention. *Journal of Research in Reading* 30(3), 227–248.



One-to-one vs. small group tutorials

For many years, the dominant form of assistance for struggling readers has been small group tutorials, in which pupils are taught in groups of two or more.

The results of the review suggest that small group tutorials with a strong phonetic emphasis and extensive training and follow-up can indeed be effective for struggling readers ($ES=+0.31$), but the effects are less than those for phonetic tutoring by teachers ($ES=+0.50$) and similar to the effect size for tutoring by teaching assistants ($ES=+0.38$).

It could be assumed that small group tutoring is the more cost-effective option. However, it is important to note that most small group tutoring programmes provide 30-40 minutes of daily teaching all year, while one-to-one tutoring is usually given less time per day and for a few months, so differences in teacher time per child are not as large as they might appear. This implies that schools should try to arrange one-to-one tutoring for pupils in the greatest difficulty. There may also be a broader set of children with milder difficulties for whom small group tutorials are sufficient.

Classroom teaching process approaches vs. tutoring

One of the most surprising findings in the review is the effectiveness of classroom teaching process approaches. These suggest that it is critical to focus first on core classroom teaching strategies, using methods that improve reading performance for the whole class, but particularly for low achievers. These programmes work well with all pupils, but the effect sizes for lowest-achieving children are about twice those reported for pupils in general.

This does not imply that tutoring is unnecessary, but rather that professional development for classroom teachers in proven methods should be a major emphasis in helping struggling readers. There will always be individual children who continue to struggle despite excellent classroom teaching, but the numbers should be much smaller and the remaining difficulties more tractable.

The average effect size across 16 studies was $+0.56$ for pupils in the lowest performing segment of their classes, similar to the effect sizes found for one-to-one phonetic tutoring. Most of these teaching process programmes are forms of co-operative learning with a strong focus on phonics (eg *CIRC* and *PALS*), and other structured phonetic models (eg *Direct Instruction*, *RAILS*, and *Project Read*).



Implications for policy

1. Teachers can significantly enhance the learning of low achievers by adopting **co-operative learning or structured phonetic classroom models**. This avoids a great deal of frustration, de-motivation, and possibly stigmatisation for the children, as well as greatly reducing difficulties, expense, and disruption inherent to providing supplemental small-group or tutoring services.
2. **One-to-one teaching is highly effective**. Children who have failed to respond in normal lessons or to proven small-group tutorials should receive one-to-one tutoring using proven models before long-term special education services are considered.
3. The evidence does not support the idea that a relatively brief tutoring experience in the early years of school is enough to ensure long term success. **Use of effective classroom teaching models over many years is needed for lasting impacts**.
4. **Programmes that provide extensive professional development to teachers in proven models are more effective** than programmes that provide technology, alternative curricula, or other interventions that do not change daily teaching practices.

The message of the review is optimistic. There are many proven and promising approaches for struggling readers, and it would be irresponsible not to use these with the aim of reducing the numbers of children who fail to learn to read adequately. We have both effective and cost-effective tools at hand. While more research is always needed, we already know enough to make a substantial difference in the reading performance of at-risk children.



Glossary

Effect size

The effect size shows how much difference a programme/intervention makes. It is the difference between the mean of the *experimental group*, and the mean of the *control group*, divided by the *standard deviation* of the control group.

The important point is that the larger the effect size, the greater the difference the programme/intervention has made. An effect size of more than +0.20 is considered educationally significant.

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