Effective Reading Programs for Title I Schools

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Contents
Executive Summary ................................................................. 3
Beginning Reading: Programs .................................................. 5
Beginning Reading: Curricula .................................................. 6
Beginning Reading: Technology .............................................. 6
Beginning Reading: Instructional Process Approaches .......... 7
Beginning Reading: Combined Curriculum and Instructional Process Approaches .................................................. 7
Kindergarten-Only Studies ...................................................... 8
Conclusions: Beginning Reading Studies ............................... 8
Cost Effectiveness ................................................................. 9
Beyond the Basics:
Programs for the Upper Elementary Grades ....................... 9
Upper Elementary Reading: Curricula ................................... 10
Upper Elementary Reading: Computer-Assisted Instruction ................................................................. 10
Upper Elementary Reading: Instructional Process Programs ................................................................. 11
Upper Elementary Reading: Combined Curriculum and Instructional Process Programs ................................................................. 12
Programs for Struggling Readers .......................................... 13
Conclusions ........................................................................ 13
References ........................................................................... 15
Executive Summary

This paper reviews research on the most effective reading programs for struggling and nonstruggling readers in elementary schools, in an attempt to identify proven strategies for Title I schools. The first section reviews achievement outcomes of four types of approaches to improving the reading success of nonstruggling readers in the elementary grades: Reading curricula, instructional technology, instructional process programs, and combinations of curricula and instructional process. Study inclusion criteria included use of randomized or matched control groups, a study duration of at least twelve weeks, valid achievement measures independent of the experimental treatments, and a final assessment at the end of grade 1 or later. A total of 63 beginning reading (starting in K or 1) and 80 upper elementary (2-5) reading studies met these criteria. The review concludes that instructional process programs designed to change daily teaching practices have substantially greater research support than programs that focus on curriculum or technology alone.

This paper also reviews research on the achievement outcomes of alternative approaches for struggling readers in grades K–5: One-to-one tutoring, small group tutorials, classroom instructional process approaches, and computer-assisted instruction. A total of 96 studies met the above criteria. The review concludes that one-to-one tutoring is very effective in improving reading performance. Tutoring models that focus on phonics obtain much better outcomes than others. Teachers are more effective than paraprofessionals and volunteers as tutors. Small-group, phonetic tutorials can be effective, but are not as effective as one-to-one phonetically-focused tutoring. Classroom instructional process programs, especially cooperative learning, can have very positive effects for struggling readers. Computer-assisted instruction generally had few effects on reading.

Taken together, the findings support a strong focus in Title I schools on improving classroom instruction and then providing one-to-one, phonetic tutoring to students who continue to experience difficulties.
From the time they enter kindergarten through their first years of elementary school, children substantially define themselves as learners. Those who end third grade reading well are not guaranteed success in school and in life, but they have cleared a major hurdle. Those who do not succeed during this critical period, however, are likely to have serious problems throughout their subsequent school careers. For example, Juel (1988) found that almost all seven year olds who had reading difficulties also had reading difficulties as ten year olds. Lloyd (1978) reported that high school dropout could be predicted to a substantial degree based on the learning levels of nine year olds, but could not be accurately predicted based on characteristics of six year olds, supporting the idea that early school learning success (or failure) is a key factor in long-term outcomes of schooling. In Title I elementary schools, ensuring reading success is by far the most important of all objectives.

In recent years, research has found that the outcomes of early schooling can be substantially affected by the programs and practices adopted by elementary schools. This paper summarizes research on programs Title I schools can use to maximize reading achievement for all students.
Beginning Reading Programs

The most important criterion for success in the early elementary years is success in reading. Reading is the basis for success in all other skills. Poor progress in reading is the main indicator of need for special education, for example, and for retention in grade.

In recent years, a consensus has emerged among most researchers about the importance of systematic, synthetic phonics in the teaching of beginning reading. That is, children have been found to learn to read best if they are taught to apply consistent strategies for blending letter sounds into words, rather than trying to learn whole words. Definitive reviews in the U.S. by Snow, Burns, & Griffin (1998) and the National Reading Panel (2000) emphasized the strong evidence base for synthetic phonics, and the Rose Report in the UK (Rose, 2006) came to the same conclusion. However, it is not enough for teachers to be given textbooks that emphasize phonics, or to have policies promoting phonics. Research finds that particular approaches to synthetic phonics and particular professional development approaches are more effective than others.

Slavin, Lake, Chambers, Cheung, & Davis (2009) recently carried out a review of research on the learning outcomes of core beginning reading programs. In order to be included in the review, studies had to meet the following standards:

1. They evaluated core reading programs that began in kindergarten or first grade (remedial programs are discussed in a separate section).
2. They compared children who used the program to those in matched or randomly assigned control groups.
3. The study took place over at least 12 weeks, but usually a year or more.
4. On pretests, the experimental and control groups were no more than a half standard deviation apart, and were well matched on demographic variables.

Studies of programs that posttested at the end of kindergarten were reviewed separately, as such studies often find positive effects just because programs teach phonics or reading skills that the control group has not yet been taught. However, by first grade all children are being taught to read, so experimental-control comparisons are meaningful. Programs that began in kindergarten and reported end of first grade (or later) outcomes were included in the main review.

An exhaustive search of published and unpublished articles written since 1970 produced a total of 63 studies that met the inclusion standards and posttested in first grade or later. The qualifying studies were done in the US, Canada, Norway, Denmark, and Germany. They involved more than 22,000 children. The reading
programs were divided into four categories: Reading curricula, technology, instructional process approaches, and combined curricula and instructional process approaches.

**Beginning Reading: Curricula**

Beginning reading curricula have been evaluated in seven studies, five of which used randomized quasi-experiments. These studies evaluated four core basal reading programs, *Open Court Reading*, *Reading Street*, and *Scholastic Phonics Readers with Literacy Place*, plus three supplemental programs, the *Open Court Phonics Kit*, *Phonics in Context*, and *Elements of Reading: Phonics and Phonemic Awareness*.

With the exception of a small study of the *Open Court Phonics Kit*, none of the programs had effect sizes in excess of +0.20. The sample size-weighted mean effect size across all seven was +0.12, with the four studies of core basal programs reporting a weighted mean effect size of +0.11 and the three studies of supplementary programs with a weighted mean of +0.12. Effect sizes averaged +0.23 for decoding measures, but only +0.09 for comprehension/total reading measures.

**Beginning Reading: Technology**

Thirteen studies of instructional technology for beginning reading met the inclusion standards. These were divided into three categories. *Supplemental technology programs*, such as *Waterford*, *WICAT*, and *Phonics-Based Reading*, are programs that provide additional instruction at students’ assessed levels of need to supplement traditional classroom instruction. *Mixed-method models*, represented by *Writing to Read*, are methods that use computer-assisted instruction along with non-computer activities as students’ core reading approach. *Embedded multimedia*, represented by *Reading Reels*, provides video content embedded in teachers’ whole-class lessons.

The weighted mean effect size for all technology approaches in beginning reading was only +0.09. A large, randomized study by Dynarski et al. (2007) and Campuzano et al. (2009) found no impact of five current supplemental CAI models. This study’s findings greatly affected the weighted mean of nine studies of supplementary CAI, estimated at +0.08. The weighted mean effect size for decoding measures, also substantially affected by the Dynarski/Campuzano findings, was only +0.05, although comprehension/total reading effects (not measured in the Dynarski/Campuzano study) averaged +0.20. Large effect sizes were reported in small, matched studies of *Waterford* and *WICAT*. *Reading Reels*, which uses multimedia embedded in teachers’ class lessons, had modest positive effects in two large randomized experiments (weighted mean ES=+0.20). With these potentially promising exceptions, research on the use of
technology in beginning reading instruction does not show positive achievement effects of the types of software that have been most commonly used.

**Beginning Reading: Instructional Process Approaches**

Instructional process programs are methods that focus on providing teachers with extensive professional development to implement specific instructional methods. These fell into three categories. *Cooperative learning* programs (Slavin, 1995, 2009) use methods in which students work in small groups to help one another master academic content. *Phonological awareness training* is an approach that gives teachers specific classroom strategies for building phonics and phonemic awareness skills. *Phonics-focused professional development models*, including *Reading and Integrated Literacy Strategies (RAILS)*, *Sing, Spell, Read*, and *Write, Ladders to Literacy, Early Reading Research*, and *Orton Gillingham*, provide training to teachers to help them effectively incorporate phonics, phonemic awareness, and other elements in beginning reading lessons.

Effects for instructional process programs were very positive. Across 17 studies, five of which were randomized quasi-experiments, the weighted mean effect size for instructional process approaches in beginning reading was +0.37. The mean was +0.47 for decoding measures and +0.30 for comprehension/total reading measures. In particular, positive effects were seen on cooperative learning programs such as *Peer-Assisted Learning Strategies (PALS)* and *Classwide Peer Tutoring* (mean ES=+0.46), phonics-focused professional development programs such as *Sing, Spell, Read*, and *Write, Early Reading Research*, and *RAILS* (mean ES=+0.43), and teaching of phonological awareness to kindergartners (mean ES=+0.22 on tests at the end of first or second grade).

**Beginning Reading: Combined Curriculum and Instructional Process Approaches**

Two programs, *Success for All* and *Direct Instruction*, both provide teachers with structured, phonetic reading materials and extensive training in the teaching of systematic phonics and other reading skills. These are by far the most extensively evaluated of all beginning reading approaches, with 23 mostly large qualifying studies of *Success for All* and 3 large studies of *Direct Instruction*.

*Success for All* is a whole-school reform model mainly used with high-poverty elementary schools. It provides schools with a K-5 reading curriculum that focuses on phonemic awareness, phonics, comprehension, and vocabulary, beginning with phonetically-regular minibooks in kindergarten and first grade. Cooperative learning is extensively used at all grade levels. Children are frequently assessed on curriculum-based measures, and struggling first graders may
receive one-to-one tutoring. Teachers receive extensive professional
development and follow-up, and a full-time facilitator in each school
helps all teachers use the model effectively. A Solutions Team works
with parents to help them support their children’s achievement
and to deal with issues such as attendance and behavior problems.
Evaluations of Success for All, including a three-year national
randomized experiment, have found substantial positive effects of
the approach, averaging an effect size of +0.29.

Direct Instruction is a structured approach to beginning reading
that emphasizes a step-by-step introduction of synthetic phonics, use
of decodable text, and extensive professional development. A large,
national evaluation of DI found only small positive effects on reading
outcomes. A large Houston study found substantial positive effects,
but a Baltimore study found few differences.

Kindergarten-Only Studies

As noted earlier, studies that began and ended in kindergarten were
treated separately because of the problem of determining whether
any program effects are due to early teaching of skills ordinarily
taught later. However, several kindergarten-only programs are at
least promising in their outcomes. The kindergarten-only program
with the strongest positive effects is an instructional process
approach called Ladders to Literacy, which provides extensive
professional development on the teaching of phonics. Two large
studies of this model found positive effects on reading outcomes,
especially when Ladders to Literacy was combined with the PALS
peer-assisted learning approach. Two studies of a phonics program
called Voyager Universal Learning System found conflicting
results, with one showing positive effects and one no differences.
Kindergarten studies of the phonetic Waterford CIA model also had
conflicting outcomes, while another CAI model called Destination
Reading had significant negative effects.

Conclusions: Beginning Reading Studies

The most important overall conclusion of the Slavin et al. (in press)
review is that systematic, synthetic phonics are necessary but not
sufficient to build strong reading skills in the early elementary years.
All of the programs that were successfully evaluated had a strong
emphasis on systematic phonics, but so did many of the programs
that were not found to be effective. Beyond phonics, what made the
greatest difference is professional development. The most successful
models provided extensive training and in-classroom follow up in
cooperative learning, phonetic teaching strategies, or (usually) both.
The most extensively evaluated and successful model, Success for
All, provides about 26 person-days of in-service and follow-up in the
first year, as well as an on-site facilitator. In contrast, none of the
programs that provide only phonetic textbooks without extensive
training or follow-up were found to have educationally significant positive effects. The same pattern was found in reviews of research on upper-elementary reading approaches (Slavin et al., 2009) and secondary reading models (Slavin, Lake, Cheung, & Groff, 2008): Instructional process approaches with extensive professional development generally produced positive outcomes in rigorous evaluations, while textbook approaches made little difference. Instructional technology approaches showed more promise in beginning reading than in upper-elementary or secondary reading, but the amount of research on technology approaches was limited. Particularly promising were embedded multimedia approaches used with the whole class, in contrast to the individualized approaches that have been more typical applications of CAI.

Cost Effectiveness

The only cost-effectiveness analysis of any of the beginning reading programs was done in a longitudinal study of Success for All by Borman & Hewes (2003) that followed Baltimore children who had been in Success for All or control schools in grades K-5. At eighth grade, the Success for All students still scored significantly better than controls, and they had been retained or assigned to special education substantially less than control students. The authors found the cost-effectiveness of the program to be greater than that of other interventions that had been studied longitudinally, the Perry Preschool, the Abecedarian Program, and reductions in class size to 15.

Beyond the Basics:
Programs for the Upper Elementary Grades

From second to fifth grade, children go through a critical transformation as readers. Most beginning second graders are able to decode, to recognize key sight words, to comprehend simple texts, and to read with some degree of fluency. The tasks that lay ahead of them, however, are qualitatively different from those they have navigated so far. They must consolidate and extend their basic skills, to be sure, and they must become fluent, confident readers. But most importantly, children in the upper elementary grades must become strategic comprehenders of increasingly sophisticated text. They must build a vocabulary of words and concepts as well as a vocabulary of cognitive and metacognitive approaches to texts. While decoding skills may develop in a fairly step-by-step progression, the skills mastered in the upper elementary grades emerge as children read in many genres and learn how to make sense of what they read a less straightforward process. Stage theorists (e.g., Chall, 1983) point out that the upper elementary years are when children transition from “learning to read” to “reading to learn.”
Because of the different objectives and requirements of the upper elementary grades, programs that are effective in building beginning reading skills are not necessarily optimal in the upper elementary grades, and vice versa. For this reason, in reviewing research on effective reading programs, it is important to review programs at each of these levels separately. Slavin, Lake, Cheung, & Davis (2009) reviewed research on upper-elementary reading programs. The following sections summarize the findings of this review.

**Upper Elementary Reading: Curricula**

The reading curricula category includes 7 qualifying studies of core basal textbooks and 9 studies of supplementary texts used as initial instruction with all students. Professional development is typically provided with these curricula, but there is far less of it than would be typical of the programs categorized in this review as instructional process programs or combined curriculum and instructional process programs. In the reading curriculum programs reviewed in this section, the theory of action is that improved content and curriculum-embedded assessments aligned with national or state standards will improve students' reading achievement. Reading outcomes of core and supplementary textbooks for the upper elementary grades have not been previously reviewed. The Slavin, Cheung, Groff, & Lake (2008) review of middle and high school reading programs did not find any qualifying studies of reading curricula.

Both core and supplemental reading curricula for the upper-elementary grades have been studied in high-quality evaluations. Among 16 studies, there were six randomized experiments as well as three randomized quasi-experiments. These studies found few effects on student reading achievement. The weighted mean effect size for core reading curricula was only +0.06, and for supplementary curricula it was +0.07, with an overall weighted mean of +0.06. The only curriculum with promising effects was Open Court, but in both of the studies of this program students received far more professional development than that usually provided, and in both studies Open Court was used for 2½ hours per day while control students had 90 minutes of reading.

**Upper Elementary Reading: Computer-Assisted Instruction**

The effectiveness of computer-assisted instruction (CAI) has been extensively debated over the past 20 years, and there is a great deal of research on the topic. Kulik (2003) concluded that research did not support use of CAI in elementary or secondary reading, although Chambers (2003) came to a more positive conclusion, giving a mean effect size of +0.25. A large randomized evaluation of various
computer software programs by Dynarski et al. (2007) found no significant effects on the reading achievement of first and fourth graders.

Thirty-one studies of computer-assisted instruction met the standards for the review. These were divided into three categories. Supplemental CAI programs, such as Jostens/Compass Learning, Academy of Reading, LeapTrack, My Reading Coach, and CCC/Successmaker provided additional instruction at students’ assessed levels of need to supplement traditional classroom instruction. Computer-Managed Learning Systems included only Accelerated Reader. This program uses computers to assess students’ reading levels, assign reading materials at students’ levels, score tests on those readings, and chart students’ progress, but students do not work directly on the computer. Innovative Technology Applications included Fast ForWord and Lightspan.

A total of thirty-one qualifying studies evaluated various forms of computer-assisted instruction, eight of which used random assignment to treatments. The studies involved a total of more than 10,000 students. Overall, the sample size-weighted mean effect size was very small (ES=+0.06). The randomized evaluations (n=8) had a weighted mean effect size of +0.05. These findings support Kulik’s (2003) conclusion that effects of computer-assisted instruction in reading are minimal.

Outcomes were similar across the three categories of CAI programs. Across twenty-five studies of supplemental programs (such as Jostens and CCC), the weighted mean effect size was +0.05. Two studies of Accelerated Schools had a mean effect size of +0.06, two studies of Fast ForWord had a mean effect size of +0.21, and a study of Lightspan had an effect size of +0.42.

**Upper Elementary Reading: Instructional Process Programs**

Instructional process programs are methods that focus on providing teachers with extensive professional development to implement specific instructional methods. In upper elementary reading, instructional process programs are quite diverse. Thirty-two studies, six of which used random assignment, evaluated a broad range of approaches. Cooperative learning programs (Slavin, 1995, 2009) use methods in which students work in small groups to help one another master academic content.

Strategy instruction programs teach students cognitive and metacognitive skills such as summarization, graphic organizers, and prediction to help them comprehend text. Strategy instruction is often combined with other methods, especially cooperative learning and peer tutoring. Structured phonetic intervention programs
are approaches emphasizing phonics, systematic instruction, and frequent assessment of student progress. *Phonics-focused professional development programs* are ones that teach teachers the NRP elements, especially phonics and phonemic awareness, mostly in workshops. *Integrated language arts programs* are less structured and less phonetic and focus on integrating reading and writing, literature study, and pleasure in reading. *Cross-age tutoring programs* involve older children working with younger ones, and *same-age tutoring* involves having children take turns tutoring one another. *Classroom-management and motivation programs* focus on building a positive learning environment.

Both the methods and the findings of instructional process programs for upper-elementary reading were quite diverse. Across thirty-three experimental-control comparisons, involving more than 17,000 students, the weighted mean effect size was +0.21. These include four randomized and two RQE studies.

Ten of the studies evaluated two forms of cooperative learning. These had a weighted mean effect size of +0.21. All but one of the cooperative-learning studies evaluated *Cooperative Integrated Reading and Composition (CIRC)*, which involves students in well-structured cooperative groups within which they help each other master and apply metacognitive learning strategies. *CIRC* was the basis for middle school reading programs called *Student Team Reading* and *The Reading Edge*, which had a weighted mean effect size of +0.29 in four secondary studies. The consistent positive effects of this family of cooperative-learning approaches support the idea that programs focusing on professional development in structured activities that engage children in discussions about reading, giving them opportunities to help one another learn and use metacognitive skills, may have particular promise for enhancing reading achievement from the second grade onward. Positive effects were also found for cross-age tutoring programs (ES=+0.26 in four studies) and for same-age tutoring (ES=+0.26 in two studies), reinforcing the conclusion that interaction among students on reading strategies is an effective approach. Another promising category was programs that emphasize metacognitive strategy instruction, such as *Reciprocal Teaching* and *Thinking Maps*, which had a weighted mean effect size of +0.32 in five studies. In these programs, students were taught skills such as prediction, summarization, and self-evaluation.

**Upper Elementary Reading: Combined Curriculum and Instructional Process Programs**

Five reading programs, *Direct Instruction*, *Corrective Reading*, *Spell Read*, *Wilson Reading*, and *Project Read*, were categorized as combining curriculum and instructional process approaches. In each case, the programs provide complete curriculum materials, replacing
(rather than supplementing) basal texts. Yet all five also provide extensive professional development, far more than that provided with basal texts, and their theories of action depend on creating significant changes in teachers’ daily instructional behaviors. All five programs strongly emphasize phonics, and all five provide step-by-step teacher’s manuals, training, follow-up, coaching, and frequent assessment of educational progress.

Three of the programs (Corrective Reading, Spell Read, and Wilson Reading), as well as Failure-Free Reading, were evaluated in the same randomized evaluation by Torgesen et al. (2006, 2007). Each program was compared to its own control group, so this is treated as four separate studies.

The six qualifying evaluations of combined curricula and instructional process programs and these involved a total of only 867 students. However, the evidence from these studies suggests that combining phonetic curricula and extensive professional development in instructional strategies is effective. The sample-size weighted mean effect size was +0.29. There were particularly positive effects for Direct Instruction/Corrective Reading in three studies (ES=+0.34).

**Programs for Struggling Readers**

Beyond the studies of core reading programs, there is extensive research on programs targeted to individual pupils who are struggling in reading. This research was reviewed by Slavin, Lake, Davis, & Madden (in press). The review concludes that one-to-one tutoring is very effective in improving reading performance. Tutoring models that focus on phonics obtain much better outcomes than others. Teachers are more effective than paraprofessionals and volunteers as tutors. Small-group phonetic tutorials can be effective, but are not as effective as one-to-one phonetically-focused tutoring. Classroom instructional process programs, especially cooperative learning, can have very positive effects for struggling readers. Computer-assisted instruction generally had few effects on reading. Taken together, the findings support a strong focus on improving classroom instruction and then providing one-to-one, phonetic tutoring to students who continue to experience difficulties.

**Conclusions**

Research on reading approaches for the elementary grades finds several programs with significant promise for increasing children’s learning and school success that have direct applicability to Title I elementary schools. The evidence particularly supports the use of approaches such as cooperative learning, which provide extensive professional development to teachers to help them make their teaching more active, motivating, and interactive for all pupils. Particular uses of technology may also contribute to children’s
success, and tutoring approaches for struggling pupils can help them get off to a good start in school.

What is most important about the evidence cited here is that it clearly indicates that Title I schools need not accept the current reading levels of young children. Proven, replicable approaches are available, and others along similar lines could be developed. A judicious policy of using what works, while expanding the number and variety of available programs, could make a broad and meaningful difference in students’ success during the crucial early elementary years.
References


