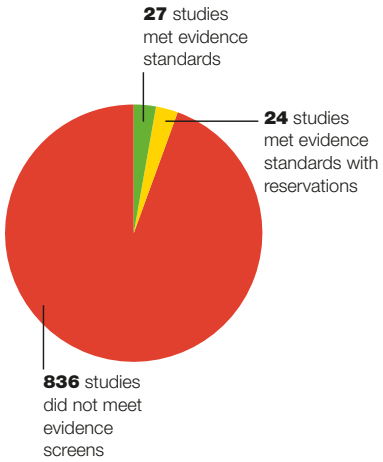
What Works Clearinghouse

ies INSTITUTE OF EDUCATION SCIENCES

WWC reviewed 887 studies of 153 beginning reading programs



Findings presented in this topic report summarize the first wave of WWC beginning reading intervention reports produced in 2006–07. http://ies.ed.gov/ncee/wwc/

Addressing the needs of beginning readers

This What Works Clearinghouse (WWC) topic review addresses a variety of programs and products developed to address the needs of beginning readers. For the current wave of reports, we focused on replicable programs or products for students in the early elementary settings (that is, grades K–3) including: core reading curricula, programs, or products to be used as supplements to other reading instruction, programs that focus on staff development, and literacy software. The What Works Clearinghouse (WWC) review on beginning reading focuses on reading interventions for students in kindergarten through grade 3 intended to increase skills in alphabetics, reading fluency, comprehension, or general reading achievement.

Because there are so many reading interventions and studies in Beginning Reading, the What Works Clearinghouse set priorities for programs to be reviewed first. They included those that, on initial screening, had studies with the strongest (most rigorous) designs and those that, on initial screening, had the most studies.[1]

We looked at 887 studies of 153 programs that qualified for our review. Of these, 51 studies of 24 programs met our evidence standards, 27 without reservations and 24 with reservations.[2] The remaining 129 programs had no studies that met the WWC evidence screens. Of these, 92 programs had one or more studies that were reviewed and did not meet WWC evidence screens. Thirty-seven programs did not have any outcomes studies.

In looking at the four outcome domains for the 24 interventions, 10 interventions had positive effects or potentially positive effects in all the outcome domains addressed in their studies (see table 1). Eleven interventions had a combination of positive or potentially positive effects in one or two domains while having mixed, negative, or no discernible effects in other domains. Three had only mixed effects or no discernible effects across domains.

Intervention ratings for Beginning Reading

Each beginning reading program reviewed had at least one study meeting WWC standards (with or without reservations) and received a rating of effectiveness in one or more of the four outcome domains (alphabetics, fluency, comprehension, and general reading achievement). The rating is designed to characterize the existing evidence, taking into account: quality of the research design, statistical significance of the findings, size of the difference between participants in the intervention and comparison conditions, and consistency in findings across studies.

The research evidence can be rated as positive, potentially positive, mixed, no discernible effects, potentially negative, or negative (see the WWC Intervention Rating Scheme). Table 1 shows the effectiveness ratings for the 24 beginning reading programs in the four outcome domains (empty cells indicate that no evidence was reported). Table 2 lists the programs for which there were no studies meeting WWC evidence screens. This includes interventions with no studies and interventions with outcomes studies that were reviewed but did not meet WWC evidence screens.

1. Thirty-two additional interventions (involving 36 quasi-experimental design studies) passed the initial screening criteria but were not included in this wave of Beginning Reading reviews. These interventions were those that on initial screening had only one eligible study that met WWC evidence standards with reservations (i.e., had the fewest numbers of studies, which also used less rigorous designs).
2. Seven additional single-case studies have dispositions pending. The WWC is currently developing standards for the review of single-case studies.

Table 1 Effectiveness ratings for 24 beginning reading interventions in four domains

	Alphabetics		Fluency		Comprehension		General reading achievement	
	Rating of effectiveness	Extent of evidence[1]	Rating of effectiveness	Extent of evidence[1]	Rating of effectiveness	Extent of evidence[1]	Rating of effectiveness	Extent of evidence[1]
Accelerated Reader/Reading Renaissance *(http://www.renlearn.com/ar)*					+	Small	+	Small
Auditory Discrimination in Depth/Lindamood Phonemic Sequencing®[2] *(http://www.lindamoodbell.com/programs/lips.html)*	+	Small			O	Small		
ClassWide Peer Tutoring *(http://www.jgcp.ku.edu)*							+	Small
Cooperative Integrated Reading and Composition® (CIRC) *(http://www.successforall.net/elementary/readingwings.htm)*					O	Medium to large		
Corrective Reading *(http://www.sraonline.com)*	+	Small	+	Small	O	Small		
Daisy Quest[3]	++	Small						
Early Intervention in Reading® (EIR) *(http://www.earlyinterventioninreading.com)*	+	Small			+	Small		
Earobics® *(http://www.earobics.com)*	++	Small	O	Small				
Failure-Free Reading *(http://www.failurefreeonline.com/index_parents.php)*	O	Small	O	Small	+	Small		
Fast ForWord® *(http://www.scilearn.com)*	++	Small			+−	Small		
Fluency Formula™ *(http://www.scholastic.com/fluencyformula)*			+	Small	−	Small		
Kaplan SpellRead *(http://kaplank12.com)*	++	Small	+	Small	+	Small		
Ladders to Literacy *(http://www.brookespublishing.com)*	+	Medium to large	+	Small	+−	Medium to large		
Little Books *(http://www.goodyearbooks.com)*							+	Small
Peer-Assisted Learning Strategies (PALS) *(http://kc.vanderbilt.edu/pals)*	+	Small	+	Small	+	Small		
Read Naturally *(http://www.readnaturally.com/)*			O	Small	O	Small		
Read, Write, Type™ *(http://www.talkingfingers.com)*	+	Small			O	Small		

(continued)

Table 1 Effectiveness ratings for 24 beginning reading interventions in four domains *(continued)*

	Alphabetics		Fluency		Comprehension		General reading achievement	
	Rating of effectiveness	Extent of evidence[1]	Rating of effectiveness	Extent of evidence[1]	Rating of effectiveness	Extent of evidence[1]	Rating of effectiveness	Extent of evidence[1]
Reading Recovery® *(http://www.readingrecovery.org)*	++	Small	+	Small	+	Small	++	Medium to large
Start Making a Reader Today® *(http://www.getsmartoregon.org)*	+	Small	+	Small	+	Small		
Stepping Stones to Literacy *(http://www.sopriswest.com)*	++	Small						
Success for All® *(http://www.successforall.net)*	+	Medium to large			+−	Medium to large	+	Medium to large
Voyager Universal Literacy System® *(http://www.voyagerlearning.com)*	+	Medium to large			−	Small		
Waterford Early Reading Program™ *(http://www.pearsondigital.com/waterford)*	+	Small			O	Small		
Wilson Reading System® *(http://www.wilsonlanguage.com)*	+	Small	O	Small	O	Small		

Note: The WWC intervention reports describe each program and provide information on the students, the cost, and the scope of use. To view the intervention reports, please click on the program name or go to http://ies.ed.gov/ncee/wwc/. Following each program name is the developer's or distributor's website address. The research evaluated addresses some but not all grade levels targeted by these interventions. Grade levels are related to student age and may affect outcomes. For a comparison of targeted grade levels and grade levels in the studies reviewed by the WWC, see Appendix A2.

1. A rating of "medium to large" requires at least two studies and two schools across studies in one domain and a total sample size across studies of at least 350 students or 14 classrooms. Otherwise, the rating is "small."
2. There is no single website listed as the product is sold by a number of distributors. See intervention report for further details.
3. There is no website listed as the developer distributes the product individually. See intervention report for further details.

Key

++ Positive effects: strong evidence of a positive effect with no overriding contrary evidence

\+ Potentially positive effects: evidence of a positive effect with no overriding contrary evidence

+− Mixed effects: evidence of inconsistent effects

O No discernible effects: no affirmative evidence of effects

− Potentially negative effects: evidence of a negative effect with no overriding contrary evidence

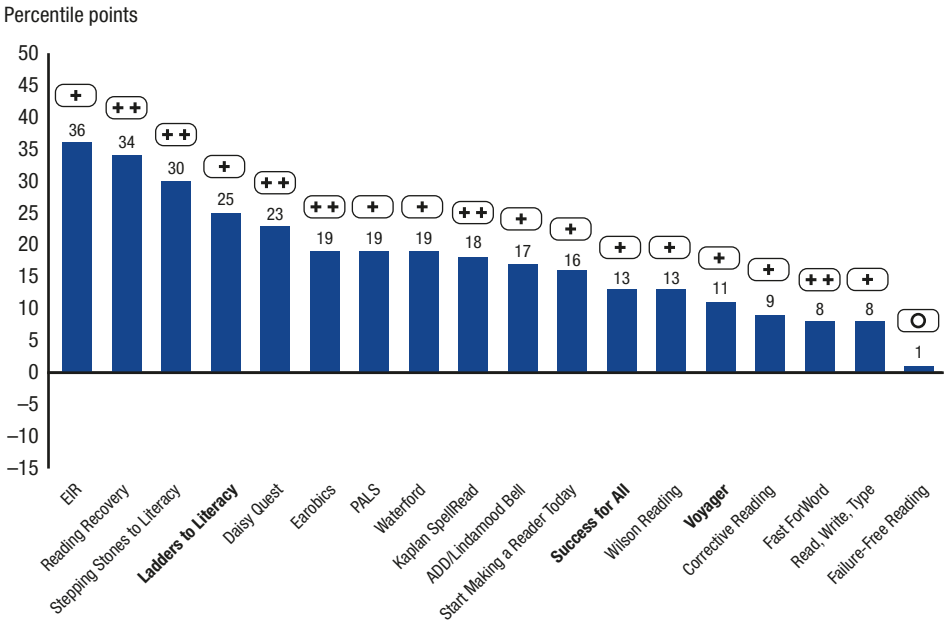
−− Negative effects: strong evidence of a negative effect with no overriding contrary evidence

Average improvement indices for each domain

The WWC computes an average improvement index for each domain and each study, as well as a domain average improvement index across studies of the same intervention (see the Technical Details of WWC-Conducted Computations).

The improvement index represents the difference between the percentile rank of the average student in the intervention condition and the percentile rank of the average student in the comparison condition. It can take on values between –50 and +50, with positive numbers denoting results favorable to the intervention group. Unlike the rating of effectiveness, which is based on four factors, the improvement index is based only on the size of the difference between the intervention and the comparison conditions.[3]

Figure 1 Alphabetics: average improvement



Note: Bold text indicates interventions with a medium to large extent of evidence.

Alphabetics

The alphabetics domain includes skills tied to word decoding and word recognition. Alphabetics comprises five constructs:

- *Phonemic awareness* (or phoneme awareness) refers to the understanding that the sounds of spoken language–phonemes–work together to make words, and phonemes can be substituted and rearranged to create different words.
- *Phonological awareness* is a more encompassing concept and refers to awareness of larger spoken units such as syllables and rhyming words.
- *Letter Identification* refers to knowledge of the names of the letters of the alphabet and has been shown to be a predictor of reading development.
- *Print awareness* refers to knowledge or concepts about print and awareness of common characteristics of books.
- *Phonics* refers to the ability to associate letters and letter combinations with sound and blending them into syllables and words.

We reviewed alphabetics outcomes for 18 beginning reading programs, and the average improvement index ranged from +1 to +36 percentile points (figure 1).

Fluency

Fluency is the ability to read connected text accurately, automatically, and with expression, while still extracting meaning from it. Many fluency outcomes rely on measuring both speed and accuracy. We reviewed fluency outcomes for 11 beginning reading programs, and the average improvement index ranged from +2 to +46 percentile points (figure 2).

Comprehension

The comprehension domain includes measures in two constructs both oriented toward understanding the meaning of what is read. The first, *vocabulary development,* refers to the development of knowledge about the meanings, uses, and pronunciation of words. Measures of both receptive (listening) and expressive (spoken or written) vocabulary were included. The second construct, *reading comprehension,* refers to the understanding of the meaning of a passage and the context in which the words occur. We reviewed comprehension outcomes for 19 programs, and the average improvement index ranged from –15 to +20 percentile points (figure 3).

3. To enable comparisons across interventions, improvement indices are calculated from student-level findings. In the case of *Ladders to Literacy* in the alphabetics domain, the average improvement index does not represent all the findings reviewed by the WWC, as some of the findings were reported on the classroom or school level, and student-level improvement indices could not be computed. For further details please see Technical Details of WWC-Conducted Computations.

Figure 2 Fluency: average improvement

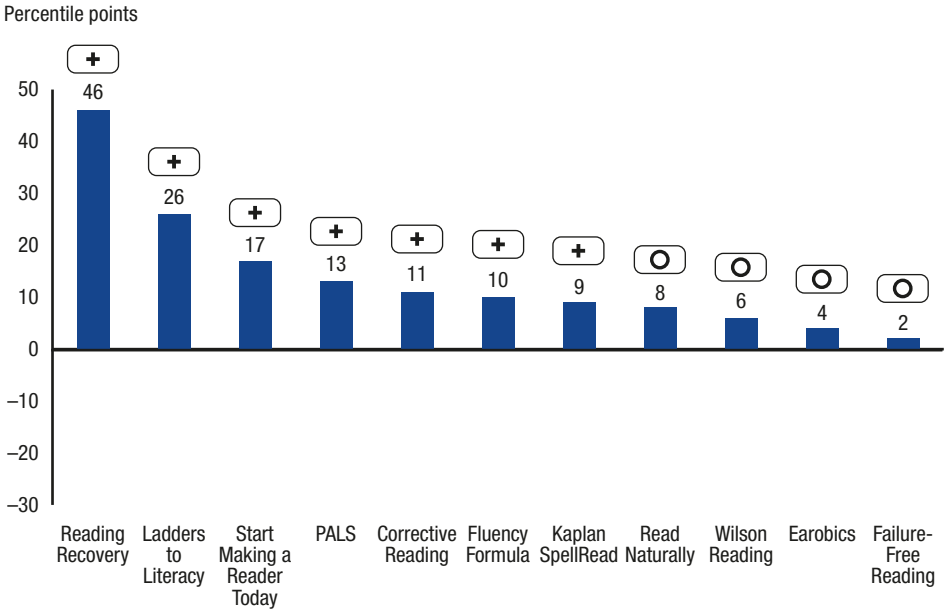
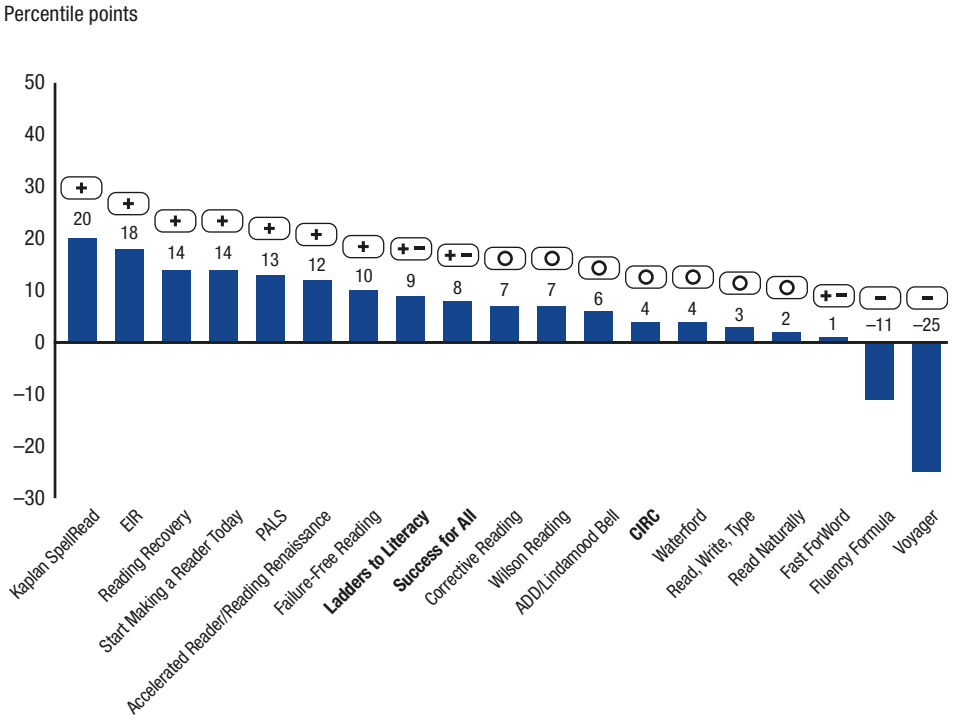
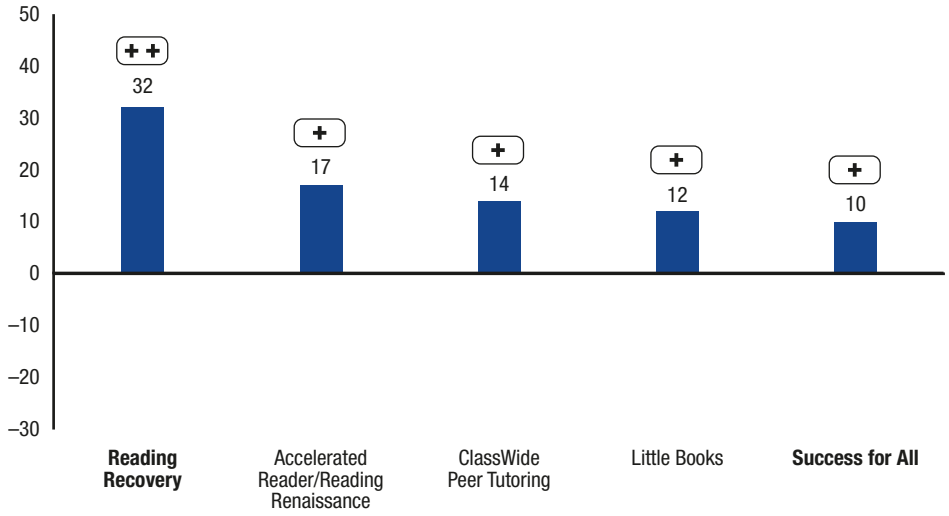


Figure 3 Comprehension: average improvement



Note: Bold text indicates interventions with a medium to large extent of evidence.

Figure 4 General reading achievement: average improvement



Note: Bold text indicates interventions with a medium to large extent of evidence.

General reading achievement

The general reading achievement domain includes outcomes that either combine two or more of the previous domains (alphabetics, reading fluency, and comprehension) or provide some other type of summary score, such as a "total reading score" on a standardized reading test. We reviewed general reading achievement outcomes for 5 programs, and the average improvement index ranged from +10 to +32 percentile points (figure 4).

Table 2 Programs reviewed with no studies meeting WWC evidence screens[4]

100 Book Challenge *(http://www.100bookchallenge.com)*	**Letter People** *(http://www.abramsandcompany.com/letterpeople_index.cfm)*
Academic Associates Learning Centers® *(http://www.academic-associates.com/index.htm)*	**Letterland** *(http://www.letterland.com)*
Academy of Reading *(no website available)*	**Leap into Phonics** *(http://www.leapintolearning.com/products.html)*
Alpha-Time *(no website available)*	**LeapFrog SchoolHouse** *(http://www.leapfrogschoolhouse.com)*
AlphabiTunes *(http://www.alphabitunes.com)*	**LinguiSystems** *(http://www.linguisystems.com)*
America's Choice *(http://www.americaschoice.org)*	**Literacy Collaborative** *(http://literacycollaborative.org)*
Athen's Tutorial Program *(http://www.uga.edu/~atp)*	**Literacy First** *(http://www.literacyfirst.com)*
Balanced Early Literacy Initiative *(no website available)*	**LocuTour Multimedia Cognitive Rehabilitation** *(http://www.locutour.com)*
Barton Reading & Spelling System *(http://www.bartonreading.com)*	**Merit Reading Software Program** *(http://www.meritsoftware.com)*
Benchmark Word Recognition Program *(http://www.benchmarkschool.org)*	**My Reading Coach™** *(http://www.myreadingcoach.com/nrp/fluency.html)*
Book Buddies *(http://www.readwritethink.org/lessons/lesson_view.asp?id=160)*	**National Geographic Society and Arizona Geographic Alliance K-8 program** *(http://alliance.la.asu.edu/geoliteracy/GeoLitNCSS.pdf)*
Bookmark *(no website available)*	**New American Schools** *(no website available)*
Bradley Reading and Language Arts *(no website available)*	**New Century Integrated Instructional System** *(http://www.ncecorp.com)*
Breakthrough to Literacy *(http://www.breakthroughtoliteracy.com)*	**New Heights** *(no website available)*
Bridge *(http://www.utpress.utoronto.ca/)*	**North Carolina A+ Schools network** *(http://aplus-schools.uncg.edu)*
Bring the Classics to Life *(http://www.edconpublishing.com)*	**Onward to Excellence** *(http://www.nwrel.org/scpd/ote)*
California Early Literacy Learning (CELL) *(http://www.cell-exll.com)*	**Pacemaker** *(http://www.pearsonschool.com)*
Carbo Reading Styles Program *(http://www.nrsi.com)*	**Pause Prompt & Praise** *(http://www.peta.edu.au)*
CIERA School Change Project *(http://www.ciera.org)*	**Peabody Language Development Kits** *(http://ags.pearsonassessments.com/group.asp?nGroupInfoID=a8550)*
C.L.A.P., A sound Approach to Pre-Reading Skills *(http://www.soundreading.com/)*	**Performance Learning Systems** *(http://www.plsweb.com)*
CompassLearning *(http://www.compasslearning.com)*	**Programmed Tutorial Reading** *(no website available)*
Compensatory Language Experiences and Reading Program (CLEAR) *(no website available)*	**Project FAST (Families Are Students and Teachers)** *(http://www.wcer.wisc.edu/FAST)*
Comprehensive Curriculum for Early Student Success (ACCESS) *(http://www.sharingsuccess.org/code/eptw/profiles/ndn1.html)*	**Project LISTEN's Reading Tutor** *(http://www.cs.cmu.edu/%7Elisten/index.html)*
Concept Phonics Fluency Set *(http://www.oxtonhouse.com/concept_phonics.html)*	

(continued)

Table 2 Programs reviewed with no studies meeting WWC evidence screens[4] *(continued)*

Cornerstone Literacy Initiative *(http://www.cornerstoneliteracy.org)*	**Project LISTEN's Writing Tutor** *(no website available)*
Crossties *(no website available)*	**Project PLUS (Partnership Linking University School Personnel)** *(no website available)*
Davis Learning Strategies® Program *(http://www.davislearn.com)*	**Project Read** *(http://www.projectread.com)*
Destination Reading *(http://web.riverdeep.net/portal/page?_pageid=818,1381924&_dad=portal&_schema=PORTAL)*	**QuickReads** *(http://quickreads.org)*
	Rainbow Reading Program *(http://www.rainbowreading.co.nz)*
Different Ways of Knowing *(http://www.differentways.org/galef/different_ways.html)*	**Read Well** *(http://store.cambiumlearning.com)*
Direct Instruction/DISTAR *(no website available)*	**Reading Intervention for Early Success** *(http://www.eduplace.com/intervention/readintervention)*
Direct Instruction/Horizons *(http://www.sraonline.com)*	**Reading Rods** *(http://www.etacuisenaire.com/readingrods/readingrods.jsp)*
Direct Instruction/RITE *(http://www.ritemail.com)*	**Reading Speed Drills** *(http://www.oxtonhouse.com/reading_speed_drills.html)*
Direct Instruction/Spelling Mastery *(http://mcgraw-hill.co.uk/sra/readingmastery.htm)*	**Reading Success from the Start** *(no website available)*
Direct Instruction/SRA *(http://www.sraonline.com)*	**Reading Theater** *(http://playbooks.com/index.shtml)*
Direct Instruction/Teach Your Child to Read in 100 Easy Lessons *(http://www.startreading.com/)*	**Reading Together™** *(http://learningtogether.com/inschool/readingtogether.html)*
Direct, Intensive, Systematic, Early, and Comprehensive (DISEC) Instruction *(no website available)*	**Reading Upgrade** *(http://www.learningupgrade.com)*
	Right Start to Reading *(no website available)*
Discover Intensive Phonics for Yourself *(http://www.readinghorizons.com)*	**Road to the Code** *(http://www.brookespublishing.com/store/books/blachman-4382/index.htm)*
Dr. Cupp Readers® & Journal Writers *(http://www.cindycupp.com)*	**SAIL (Second grade Acceleration in Literacy)** *(no website available)*
Edison Schools *(http://www.edisonschools.com)*	**Saxon Phonics** *(http://saxonpublishers.harcourtachieve.com/en-US/saxonpublishers.htm)*
Emerging Readers Software *(http://www.soundreading.com)*	**Schoolwide Early Language and Learning (SWELL)** *(no website available)*
Essential Skills Software *(http://www.essentialskills.net)*	**SkillsTutor** *(http://www.achievementtech.com)*
Evidence Based Literacy Instruction *(http://www.ebli.org)*	**Soar to Success** *(http://www.eduplace.com)*
Fast Track Action Reading Program *(no website available)*	**Sonday System** *(http://www.sondaysystem.com)*
Felipe's Sound Search *(http://www.cosmosliteracy.com)*	**Sound Field System** *(no website available)*
First grade Literacy Intervention Program (FLIP) *(no website available)*	**Sound Foundations** *(no website available)*
Flippen Reading Connections™ *(http://www.flippengroup.com/education/index.html)*	**Sound Partners** *(http://www.wri-edu.org/partners/sound-partners.htm)*
Frontline Phonics *(http://www.frontlinephonics.com)*	**Sound Reading** *(http://www.soundreading.com)*
Fundations *(http://www.fundations.com)*	**Sounds Abound** *(http://www.linguisystems.com)*

(continued)

Table 2 Programs reviewed with no studies meeting WWC evidence screens[4] *(continued)*

Funnix *(http://www.funnix.com)*	**Sounds and Symbols Early Reading Program** *(http://ags.pearsonassessments.com)*
GOcabulary Program for Elementary Students *(http://www.gocabulary.com/gocabel.htm)*	**S.P.I.R.E.** *(http://www.epsbooks.com/dynamic/catalog/program.asp?seriesonly=3250M)*
Goldman-Lynch Language Simulation Program *(no website available)*	**Starfall** *(http://www.starfall.com)*
Goldman-Lynch Sounds-in-Symbols Development Kit *(http://ags.pearsonassessments.com/group.asp?nGroupInfoID=highhat)*	**STEPS (Sequential Teaching of Explicit Phonics and Spelling)** *(http://www.stepsreadingcenter.com)*
	Stories and More *(http://brightbluesoftware.com/stories.htm)*
Guided Discovery LOGO *(no website available)*	**Story Comprehension to Go** *(http://www.linguisystems.com)*
Hooked on Phonics® *(http://secure.hop.com/index.cfm)*	**Strategies that Work** *(no website available)*
HOTS *(http://www.hots.org)*	**Student Teams Achievement Divisions (STAD)** *(http://www.pwcs.edu/curriculum/sol/stad.htm)*
Huntington Phonics *(no website available)*	**SuccessMaker® Reading** *(http://www.pearsondigital.com)*
IntelliTools Reading *(http://www.intellitools.com)*	**Sullivan Program** *(no website available)*
Invitations to Literacy *(http://www.eduplace.com/rdg/itl)*	**Voices Reading** *(http://www.zaner-bloser.com)*
Irlen Method *(http://irlen.com)*	**VoWac (Vowel Oriented Word Attack Course)** *(http://www.vowac.com)*
Jigsaw Classroom *(http://www.jigsaw.org)*	**Wiggleworks** *(http://teacher.scholastic.com/products/wiggleworks/index.htm)*
Johnny Can Spell *(http://www.nine-enterprises.com/nine/nav00.asp)*	**WORKSHOP WAY—Instant Personality Phonics Activities** *(http://www.workshopway.org/workshop-way.htm)*
Jostens Integrated Language Arts Basic Learning System *(no website available)*	
Kindergarten Works *(no website available)*	**Wright Group's Intervention Program** *(http://www.wrightgroup.com)*
Kindergarten Intervention Program (KIP) *(no website available)*	**Writing to Read** *(http://brightbluesoftware.com/wtr.htm)*

4. The table includes all eligible programs with no studies and all eligible programs with no studies meeting evidence standards. The list was compiled from interventions that were suggested for WWC review by public submission and interventions that arose in studies found during the WWC literature search. The list is not inclusive of all reading interventions, and some of the interventions may no longer be actively distributed.

For more information about the studies reviewed and the WWC methodology, please see the WWC Beginning Reading Technical Appendices.