

## WWC EVIDENCE REVIEW PROTOCOL FOR ADOLESCENT LITERACY INTERVENTIONS (GRADES 4–12) VERSION 1.0

---

### Topic Area Focus

The What Works Clearinghouse (WWC) review focuses on adolescent literacy interventions for students in grades 4–12 (or ages 9 to 18)<sup>1</sup> that are intended to increase literacy skills in **alphabets** (phonemic awareness, phonological awareness, letter identification, print knowledge, and phonics), **reading fluency**, **comprehension** (vocabulary and reading comprehension), or **general literacy achievement** (general reading and other related academic achievement, see definitions below). Systematic reviews of evidence in this topic area address the following questions:

- Which interventions intended to provide literacy instruction improve literacy skills among adolescents in grades 4-12 (or ages 9-18)?
- Are some interventions more effective than others for certain types of literacy skills?
- Are some interventions more effective for certain types of students, particularly students who have historically lagged behind in reading and/or literacy achievement?

### Key Definitions

#### Alphabets Domain

**Phonemic awareness.** 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. Phonemic awareness includes the ability to identify, think about, and work with the individual sounds in spoken words. Phonemic awareness helps children learn how to read and spell, by allowing them to combine or blend the separate sounds of a word to say the word (e.g., “/c/ /a/ /t/ - cat”).

**Phonological awareness.** Phonological awareness is a more encompassing term than phoneme/phonemic awareness (PA). Phonological awareness is a term referring to various types of awareness, which includes PA *and* also awareness of larger spoken units such as syllables and rhyming words. Tasks of phonological awareness might require students to generate words that rhyme, to segment sentences into words, to segment polysyllabic words into syllables, or to delete syllables from words (e.g., what is cowboy without cow?). Tasks that require students to manipulate spoken units larger than phonemes are simpler for beginners than tasks requiring

---

<sup>1</sup> Students who are older than 18 and younger than 9 are included as long as they are in grades 4 – 12. If authors do *not* provide the grade level of study students, we will use the age range of 9-18 years of age to determine if the study is eligible for review within the Adolescent Literacy topic area.

phoneme manipulation (Liberman, Shankweiler, Fischer, & Carter, 1974).

**Letter Identification.** Knowing the names of the letters of the alphabet supports reading acquisition. Letter-naming measures have been shown to be predictors of reading development especially when letter naming is taught in conjunction with other beginning reading skills.

**Print Awareness.** Print awareness refers to knowledge or concepts about print such as (a) print carries a message; (b) there are conventions of print such as directionality (left to right, top to bottom), differences between letters and words, distinctions between upper and lower case, punctuation; and that (c) books have some common characteristics (e.g. author, title, front/back). It has been shown that print awareness supports reading acquisition (e.g., decoding).

**Phonics.** Phonics<sup>2</sup> refers to (a) the knowledge that there is a predictable relationship between phonemes (the sounds in spoken language) and graphemes (the letters used to represent the sounds in written language); (b) the ability to associate letters and letter combinations with sound and blending them into syllables and words; and (c) the understanding that this information can be used to read or decode words. Spelling is included in the review as an acceptable phonics outcome.

## Reading Fluency Domain

**Reading fluency.** Fluency is the ability to read text accurately, automatically, and with expression, while extracting meaning from it.

## Comprehension Domain

**Vocabulary development.** This refers to the development of knowledge about the meanings, uses, and pronunciation of words. The development of receptive vocabulary (words understood) and expressive vocabulary (words used) is critical for reading comprehension.

**Reading comprehension.** Reading comprehension refers to the understanding of the meaning of a passage. Reading comprehension is composed of two equally important components. Decoding, or the ability to translate text into speech, is only part of the process of reading comprehension. The other part is language comprehension, or the ability to understand spoken language. All struggling readers have difficulty with either language comprehension or decoding or both.

## General Literacy Achievement Domain<sup>3</sup>

**General reading achievement.** Outcomes that fall in the general reading achievement domain are those that either combine two or more of the previous domains (phonics, reading fluency, and comprehension) or provide some other type of summary score, such as a “total reading score” on

---

<sup>2</sup> “Phonics” also refers to an instructional approach that focuses on the correspondence between sounds and symbols and is often used in contrast to whole language instructional approaches. For the purposes of the Adolescent Literacy Review Protocol, we use the term phonics as defined above, not as an instructional approach.

<sup>3</sup> Writing outcomes are outside the scope of the Adolescent Literacy Review, but will be included in the WWC Adolescent Writing Review.

a standardized reading tests, grades in reading or language arts class, or promotion to the next grade.

***Other related academic achievement.*** Other related academic achievement outcomes may include measures of specific content area knowledge that the adolescent literacy practices aim to improve (e.g., improved understanding of history text).

## General Inclusion Criteria

### Populations to be Included

The Adolescent Literacy topic area will review studies of interventions administered to students in grades 4-12 (or 9 to 18 years of age).<sup>4</sup> Studies of reading interventions involving students in grades K-3 are reviewed under the WWC Beginning Reading topic area. In cases when study authors include samples of students that span both the Adolescent Literacy and Beginning Reading topic areas and cannot be disaggregated by grade level, *any studies that include 5th grade students (or higher)* will be reviewed by the Adolescent Literacy topic area, with the rest covered by the Beginning Reading topic area.

The Adolescent Literacy review will not cover studies focused *exclusively* on students classified as needing special education services, as these studies will be included in other WWC topic areas focusing on special education including (but not limited to<sup>5</sup>) the Students with Learning Disabilities topic area and the Students with Emotional and Behavioral Disorders topic area.<sup>6</sup> Any study that includes a sample where 100 percent of the students are identified as special education students for other reasons (such as autism, ADHD, intellectual disabilities/mental retardation, speech/language impairment) will not be reviewed by the Adolescent Literacy team for inclusion in the main intervention report for the intervention in question. However, any studies with less than 100% special education students *will* be reviewed in the Adolescent Literacy topic area. Similarly, the Adolescent Literacy review will not cover studies focused *exclusively* on English Language Learners (ELL) or students classified as Limited English Proficient (LEP), as these studies will be included in the WWC English Language Learner topic area. However, any studies with less than 100% ELL and/or LEP students *will* be reviewed in the Adolescent Literacy topic area.

For any studies that present analyses of subgroups of the study sample, the subgroup analyses will be eligible for review in the Adolescent Literacy topic area. Students living in high poverty and students from minority groups are of particular interest because these populations lag behind the population as a whole in reading achievement.

---

<sup>4</sup> Review may also include studies with students younger than age 9 or older than age 18 if those students are in grades 4-12.

<sup>5</sup> Additional topic areas focused on special education students may be formed to cover students classified as special education for other reasons.

<sup>6</sup> Another WWC topic area that focuses on special education (Early Childhood Education Interventions for Children with a Disability [ECED]) involves students who will be out of scope for the Adolescent Literacy topic area due to the age range that is the focus of the area's reviews.

## Types of Interventions to be Included

The specific interventions considered for inclusion are determined after an exhaustive search of the published and unpublished literature by the Evidence Report Team, as well as a review of nominations submitted to the WWC. Only research on interventions that are replicable (that is, can be reproduced) are reviewed. The types of interventions included are as follows:

- Programs/products, such as<sup>7</sup>
  - Comprehensive, non-textbook based programs—some of which are curriculum-based, others focusing on staff development—intended to serve as a school’s prime literacy instruction program for students in grades 4-12, such as Wilson Reading System, Literacy First, or LANGUAGE!
  - Supplemental programs for students in grades 4-12 that are intended to enhance whole-school and/or whole-classroom literacy.
  - Grade 4–12 reading or literacy textbooks intended for whole-school and/or whole-classroom use, such as Prentice Hall Literature, SRA/McGraw-Hill Open Court, or Houghton Mifflin Reading.
  - Programs aimed at struggling readers in grades 4-12 and children who read behind their grade level, such as remedial curricula that bring low-achieving students’ academic performance closer to the standards for their grade in school.<sup>8</sup>
  - Software designed to improve literacy skills.
- Practices (e.g., semantic mapping, vocabulary instruction, questioning, summarizing)
- Policies (e.g., a schoolwide literacy initiative )

---

<sup>7</sup> While the Adolescent Literacy topic area will focus on studies of interventions used during the regular school day, studies of interventions used during afterschool programs or in the context of dropout prevention programs will also be eligible for review. For example, a study of the use of Read 180 in an afterschool program or a study of the use of Accelerated Reader as part of a dropout prevention program would be eligible for review.

<sup>8</sup> The Adolescent Literacy review will not cover studies focused exclusively on students classified as needing special education services, as these studies will be included in the other WWC topic areas focusing on special education including (but not limited to) Students with Learning Disabilities and Students with Emotional and Behavioral Disorders. Any study that includes a sample where 100 percent of the students are identified as special education students for other reasons (such as autism, ADHD, intellectual disabilities/mental retardation, speech/language impairment) will not be reviewed by the Adolescent Literacy team for inclusion in the main intervention report for the intervention in question. However, any studies with less than 100% special education students *will* be reviewed by the Adolescent Literacy team.

## Types of Research Studies to be Included

The adolescent literacy literature search focuses on studies involving programs/products, practices, and policies to improve the literacy skills of students in grades 4-12. To be included in the review, a study must meet several relevancy criteria:

- **Topic relevance.** The study has to be about adolescent literacy, focusing on reading fluency, comprehension, alphabets, or general literacy achievement. The study is required to focus on the effects of interventions, not on
  - individual differences (e.g., correlational studies examining the association between reading speed and performance on a reading test; studies focusing on brain functions or structures), or
  - assessment (e.g., on properties of an instrument) .
- **Language relevance.** The study should be written in English.
  - Studies that are written in English, but focus on literacy in other languages are excluded from the review.
- **Timeframe relevance.** The study has to have been published in 1989 or later.
- **Sample relevance.** The sample must include students in grades 4-12 (or age 9-18) who read and write in English.
  - The intervention has to have taken place in grades 4-12; the outcome could be measured in grades 4-12 or later.
  - Studies that focus exclusively on students classified as needing special education services, English language learners (ELL), or students classified as Limited English Proficient (LEP) are excluded from consideration.<sup>9</sup>
- **Study design relevance.** The study design and focus are limited to manuscripts that
  - are empirical studies, using quantitative methods and inferential statistical analysis, and
  - take the form of a randomized controlled trial, a regression-discontinuity design, a quasi-experimental design, or a single-subject design.<sup>10</sup>

---

<sup>9</sup> Studies in which 100 percent of the sample is classified as needing special education services will be reviewed in other WWC topic areas focusing on special education including (but not limited to) Students with Learning Disabilities and Students with Emotional and Behavioral Disorders. Any study that includes a sample where 100 percent of the students are identified as special education students for other reasons (such as autism, ADHD, intellectual disabilities/mental retardation, speech/language impairment) will not be reviewed by the Adolescent Literacy team for inclusion in the main intervention report for the intervention in question. Studies in which 100 percent of the sample is classified as ELL or LEP will be reviewed in the ELL topic area.

- **Outcome relevance.** The study is required to
  - focus on student outcomes (not teacher or other, outcomes),
  - focus on students’ literacy related outcomes (not non-literacy related outcomes such as motivation or engagement), and
  - include at least one relevant outcome<sup>11</sup> that demonstrated adequate face validity or reliability.

## Specific Topic Parameters

The following parameters specify which studies are considered for analyses and which aspects of those studies are coded for the review.

### 1. Characteristics of adolescent literacy interventions.

We define adolescent literacy interventions for students in grades 4-12 as programs/products, practices, or policies that are intended to increase skills in phonics, reading fluency, comprehension (vocabulary and reading comprehension), or general literacy achievement (general reading and other related academic achievement).

- Programs/products include:
  - Comprehensive, non-textbook based programs—some of which are curriculum-based, others focusing on staff development—intended to serve as a school’s prime literacy instruction program for students in grades 4-12, such as Wilson Reading System, Literacy First, or LANGUAGE!
  - Supplemental programs for students in grades 4-12 that are intended to enhance whole-school and/or whole-classroom literacy
  - Grade 4–12 reading or literacy textbooks intended for whole-school and/or whole-classroom use, such as Prentice Hall Literature, SRA/McGraw-Hill Open Court, or Houghton Mifflin Reading
  - Programs aimed at struggling readers in grades 4-12 and children who read behind their grade level, such as remedial curricula that bring low-achieving students’ academic performance closer to the standards for their grade in school.
  - Software designed to improve literacy skills

---

<sup>10</sup> At this time, the WWC is developing standards for reviewing or reporting on regression discontinuity and single-case design studies. Consequently, studies with single-case and regression discontinuity designs will be reviewed after the standards have been finalized.

<sup>11</sup> A relevant outcome is defined as an outcome that falls in one of the domains listed on page 1 and 2 of this document (in the “Key Definitions” section).

## WWC Evidence Report Protocol for Adolescent Literacy Interventions

- Practices include semantic mapping, vocabulary instruction, questioning, and summarizing (among others).
- Policies include schoolwide literacy initiatives.
- Variations across programs, products, practices, and policies include:
  - Targeting to specific populations (e.g., students below grade level; at-risk students)
  - Intention to be a school’s primary literacy instruction program, versus a supplemental literacy program
  - Relative emphasis on implementing a packaged curriculum versus provision of professional development
  - Relative emphasis on approaches focused on the reading of literature versus content materials drawn from subject matters
  - Different level of implementation (national; statewide; district-wide; school-wide; individual grades; whole group; small group; one-on-one)
  - Different medium/media through which program is implemented (e.g., computer software, textbooks)
  - Relative emphasis on enhancing specific literacy outcomes (e.g., phonics skills versus text comprehension skills)
- We make the additional distinction between “branded” and “non-branded” interventions<sup>12</sup>. Branded interventions are commercial programs and products that may possess any of the following characteristics:
  - Have an external developer who:
    - Provides technical assistance (e.g., provides instructions/guidance on the implementation of the intervention)
    - Sells or distributes the intervention
  - Replicable: packaged or otherwise available for distribution/use beyond a single site
  - Trademarked

---

<sup>12</sup> Review in this area only cover publicly available interventions that educators would have access to.

## **2. Elements of intervention replicability.**

The important characteristics of an intervention that must be documented in a study to reliably replicate the intervention with different participants, in other settings, at other times include:

- Intervention description
  - The skill(s) being targeted
  - The approach to enhancing the skill(s)
  - The targeted population
  - The unit of delivery of the intervention (i.e., whole group, small group, or individual student)
  - The medium/media of delivery of the intervention (i.e., teacher-led instruction or software)
- Intervention duration
  - The length of time the intervention took place
- Description of intervention deliverers
  - Characteristics of the individuals administering the intervention

## **3. Outcomes relevant to adolescent literacy.**

Alphabetics (phonemic awareness, phonological awareness, letter identification, print knowledge, and phonics), reading fluency, comprehension (vocabulary and reading comprehension), and general literacy achievement (general reading and other related academic achievement) are our primary outcomes of interest. Although we recognize the importance of motivation and attitudes toward reading, we have focused this review solely on student achievement outcomes.

These literacy skills may be measured by standardized achievement tests, by researcher- or teacher-developed materials, by post-intervention class grades, and indirectly, by grade promotion.

The over-alignment between the outcome and the intervention is another factor we consider in our reviews. The outcome measure is “overaligned”, when a study uses an outcome measure that directly tests for the content of the program itself. For example, over-alignment exists if an intervention group is exposed to reading paragraphs from the outcome measure during the intervention, but the comparison group is not. In cases, where the study’s only outcome measure is over-aligned with the intervention, RCTs will be downgraded to meeting standards with reservations, while QEDs will be downgraded to not meeting standards.

#### **4. Reliability of outcome measures.**

Reliability (internal consistency, temporal stability/test-retest reliability, and inter-rater reliability) will be assessed using the following standards determined by the WWC Standards and Statistics, Technical and Analysis Team (STAT) Committee:

- Internal consistency: minimum of 0.60
- Temporal stability/test-retest reliability: minimum of 0.40
- Inter-rater reliability: minimum of 0.50

#### **5. Timeframe of review.**

The Adolescent Literacy Review and future Intervention Reports focus on a 20-year span, from 1989 to 2008. We believe this timeframe adequately represents the current status of the field as well as allows for a manageable project scope.

#### **6. Defining characteristics of the target population.**

The adolescent literacy population is defined as grades 4-12 (approximate ages 9 to 18). We include studies on adolescents that are typically developing as well as those at risk for reading difficulties, including adolescents with learning disabilities and low-income minority adolescents.<sup>13</sup>

#### **7. Characteristics relevant to equating groups.**

Important characteristics of participants that might be related to the intervention's effect and must be equated if a study does not employ random assignment include:

- Pretest measures of alphabetic (phonemic awareness, phonological awareness, letter identification, print knowledge, and phonics), reading fluency, comprehension (vocabulary and reading comprehension), or general literacy achievement (general reading and other related academic achievement).

---

<sup>13</sup> The Adolescent Literacy review will not cover studies focused *exclusively* on students classified as needing special education services, as these studies will be included in the other WWC topic areas focusing on special education including (but not limited to) Students with Learning Disabilities and Students with Emotional and Behavioral Disorders. Any study that includes a sample where 100 percent of the students are identified as special education students for other reasons (such as autism, ADHD, intellectual disabilities/mental retardation, speech/language impairment) will not be reviewed by the Adolescent Literacy team for inclusion in the main intervention report for the intervention in question. However, any studies with less than 100% special education students *will* be reviewed in the Adolescent Literacy topic area. Similarly, the Adolescent Literacy review will not cover studies focused *exclusively* on English Language Learners (ELL) or students classified as Limited English Proficient (LEP), as these studies will be included in the WWC English Language Learner topic area. However, any studies with less than 100% ELL and/or LEP students *will* be reviewed in the Adolescent Literacy topic area.

- Individual characteristics such as IQ and demographic characteristics such as socio-economic status, and other factors associated with sorting children into study groups.

The issue of when the equating was done must also be considered, as well as whether the equating procedure may have resulted in groups with extreme scores in measurements (because upon repeated measurements, these scores tend to move toward the average, even without an intervention taking place).

In QED comparison studies, groups of children being compared must be drawn from the same population of children. Consequently, groups must be roughly equivalent with regard to the pretest of the outcome measure or its proxy (e.g., groups differ on the pretest by less than 1/2 a standard deviation or the difference is not statistically significant in an adequately powered test). Evidence that the groups in a QED comparison group study differ substantially on these dimensions can result in the failure of a study because substantial differences suggest that the groups represent distinct populations. Evidence that the groups come from distinctly different settings, or statistically significant pretest differences, or reported mean pretest differences between groups of more than 1/2 the sample standard deviation suggests that the groups represent different populations. The onus for demonstrating initial equivalence of groups rests with the investigator. Sufficient reporting of these factors should be included (or obtained) to establish the initial equivalence of the groups.

#### **8. Effectiveness of the intervention across different groups.**

An intervention's effectiveness will likely vary by subgroups in the population, and a study that claims to test the effectiveness of an intervention should attempt to examine the effects of the intervention within important subgroups. These important subgroups include:

- Students of differing achievement levels (e.g., poor readers, underachievers)
- Students of different ages (i.e., different levels of cognitive development)
- Students from different grades (i.e., primary vs. secondary)
- Students from different socioeconomic backgrounds
- Students who are ethnic or racial minorities

#### **9. Effectiveness of the intervention across different settings.**

An intervention's effectiveness will likely vary by location, and a study that claims to test the effectiveness of an intervention should attempt to examine the effects of the intervention across different settings. Different settings include:

- Location types (urban, rural, suburban)
- School types (e.g., public, private, parochial)

- Classroom types (e.g., regular, inclusion classrooms)

## **10. Measuring post-intervention effects.**

Most literacy studies do not involve much of a lag between the end of an intervention and the measurement of the outcome, and so typical intervals can range from days to several weeks. Few literacy studies involve a significant lag of several months or more between the end of the intervention and the measurement of the outcome. Accordingly, we define one (1) day or more post-intervention as an appropriate interval for measuring a literacy intervention's effect. In addition, pretest, interim, and posttest measures also boost the ability of the researchers to evaluate the effectiveness of an intervention.

## **11. Defining severe overall attrition**

In individual RCTs and well-controlled QEDs, severe overall attrition is defined as greater than 20% loss. If overall attrition is less than or equal to 20%, we assume that the bias associated with it is minimal. If it is greater than 20%, the burden of proof shifts, and the study authors need to show that overall attrition did not bias the effect size estimate. A post-attrition demonstration of group equivalence on the pretest is required. "Post-attrition demonstration of group equivalence" is defined as either a well-powered (.80) test of equivalence that is nonsignificant or a standardized mean difference between groups of less than  $d = .10$ .

In cluster RCTs, attrition needs to be considered at two levels: the cluster and the individual child. Because attrition at the individual level may not change the cluster-level characteristics (except aggregated individual characteristics), the bar for severe overall attrition at the child level can be less stringent than it is for studies in which individual children are randomly assigned and where attrition introduces selection bias into the design. If the remaining sample represents at least 60% of the initial cluster membership, attrition is not assumed to be severe (e.g., if a researcher samples 100% of the initial cluster, up to 40% attrition is acceptable at the within-cluster level).

## **12. Defining differential attrition**

In individual RCTs, cluster RCTs, and well-controlled QEDs, differential attrition from the intervention and control groups is defined as being greater than 7% differential loss. If differential attrition is less than or equal to 7%, we assume that the bias associated with it is minimal. If it is greater than 7%, the burden of proof shifts, and the study authors need to show that differential attrition did not bias the effect size estimate. A post-attrition demonstration of group equivalence on the pretest is required. "Post-attrition demonstration of group equivalence" is defined as either a well-powered (.80) test of equivalence that is nonsignificant or a standardized mean difference between groups of less than  $d = .10$ .

## **13. Statistical properties of the data important to obtain an accurate estimate of an effect size.**

- For most statistics (including d-indexes), normal distribution and homogeneous variances are important properties.

## WWC Evidence Report Protocol for Adolescent Literacy Interventions

- For odds-ratios there are no required desirable properties except the minimum of 5 observations per cell.
- In the case where a misaligned analysis is reported (i.e., unit of analysis is not the same as the unit of assignment) and the author is not able to provide a corrected analysis, the effect sizes computed by the WWC will incorporate a statistical adjustment for clustering. The default intraclass correlation used for adolescent literacy achievement outcomes is 0.20. For an explanation about the clustering correction, see the WWC Tutorial on Mismatch.
- In the case where multiple comparisons are made (i.e., multiple outcome measures are assessed within an outcome domain in one study), the WWC accounts for this multiplicity by adjusting the author reported statistical significance of the effect using the Benjamini-Hochberg correction. See Technical Details of WWC-Conducted Computations for the formulas the WWC used to calculate statistical significance.

## Methodology

### Collecting and Screening Studies

The What Works Clearinghouse (WWC) literature search is comprehensive and systematic. Detailed protocols guide the entire literature search process. At the beginning of the process, relevant journals, organizations, and experts are identified. The WWC searches core sources and additional topic-specific sources identified by the Principal Investigator and the Senior Content Advisor. The process is fully and publicly documented.

### Sources for Studies

Trained WWC staff members use the following strategies in collecting studies:

#### *Databases*

This is the core list of electronic databases that are searched across topics:

1. ***ERIC***. Funded by the U.S. Department of Education, ERIC is a nationwide information network that acquires, catalogs, summarizes, and provides access to education information from all sources. All ED publications are included in its inventory.
2. ***PsycINFO***. PsycINFO contains more than 1.8 million citations and summaries of journal articles, book chapters, books, dissertations and technical reports, all in the field of psychology. Journal coverage, which dates back to the 1800s, includes international material selected from more than 1,700 periodicals in over 30 languages. More than 60,000 records are added each year.
3. ***Campbell Collaboration***. C2-SPECTR (Social, Psychological, Educational, and Criminological Trials Register) is a registry of over 10,000 randomized and possibly randomized trials in education, social work and welfare, and criminal justice.

4. ***Dissertation Abstracts.*** As described by Dialog, Dissertation Abstracts is a definitive subject, title, and author guide to virtually every American dissertation accepted at an accredited institution since 1861. Selected Masters theses have been included since 1962. In addition, since 1988, the database includes citations for dissertations from 50 British universities that have been collected by and filmed at The British Document Supply Center. Beginning with DAIC Volume 49, Number 2 (Spring 1988), citations and abstracts from Section C, Worldwide Dissertations (formerly European Dissertations), have been included in the file. Abstracts are included for doctoral records from July 1980 (Dissertation Abstracts International, Volume 41, Number 1) to the present. Abstracts are included for Master's theses from Spring 1988 (Masters Abstracts, Volume 26, Number 1) to the present.
5. ***Academic Search Premier.*** This multi-disciplinary database provides full text for more than 4,500 journals, including full text for more than 3,700 peer-reviewed titles. PDF backfiles to 1975 or further are available for well over one hundred journals, and searchable cited references are provided for more than 1,000 titles.
6. ***EconLit.*** EconLit, the American Economic Association's electronic database, is the world's foremost source of references to economic literature. The database contains more than 785,000 records from 1969-present. EconLit covers virtually every area related to economics.
7. ***Business Source Corporate.*** Contains full text from nearly 3,000 quality business and economics magazines and journals (including full text of many only abstracted in other sources we search). Information in this database dates as far back as 1965.
8. ***SocINDEX with Full Text.*** SocINDEX with Full Text is the world's most comprehensive and highest quality sociology research database. The database features more than 1,986,000 records with subject headings from a 19,600+ term sociological thesaurus designed by subject experts and expert lexicographers. SocINDEX with Full Text contains full text for 708 journals dating back to 1908. This database also includes full text for more than 780 books and monographs, and full text for 9,333 conference papers.
9. ***EJS E-Journals.*** E-Journals from EBSCO host®: Find article-level access for thousands of E-Journals available through EBSCO's Electronic Journal Service (EJS). This resource covers journals MPR subscribes to.
10. ***Education Research Complete .*** Education Research Complete is the definitive online resource for education research. Topics covered include all levels of education from early childhood to higher education, and all educational specialties, such as multilingual education, health education, and testing. Education Research Complete provides indexing and abstracts for more than 1,840 journals, as well as full text for more than 950 journals, and includes full text for more than 81 books and monographs, and for numerous education-related conference papers.
11. ***WorldCat.*** WorldCat is the world's largest network of library content and services, and allows users to simultaneously search the catalogs of over 10,000 libraries, containing over 1.2 billion books, dissertations, articles, CDs, and other media.

12. **Google Scholar.** Google Scholar provides a simple way to broadly search for scholarly literature. From one place, users can search across many disciplines and sources: peer-reviewed papers, theses, books, abstracts and articles, from academic publishers, professional societies, preprint repositories, universities and other scholarly organizations.

**Search Parameters**

After the identification of the topics for review, the Project Coordinator and the librarians initiate the search using keywords and search terms for each database. The Senior Content Advisor reviews and supplements the list with additional keywords and search terms.

**Table 1. Examples of Adolescent Literacy Keywords Used for Electronic Searches**

Keywords	ERIC Thesaurus Term(s)	PsycINFO Thesaurus Term(s)	Dissertation Abstracts
Literacy	(R) Literacy education, reading skills	(R) Reading skills, reading education, reading development, literacy programs	Use keywords from Keyword column as needed. There is an Education, reading subject category (Descriptor code: 0535)
Reading skills	(B) Language skills, reading ability	(N) Reading comprehension, reading speed (R) sight vocabulary, work recognition	Use keywords from Keyword column as needed.
Literacy instruction	(UT) Literacy Education, (N) Basal reading, remedial reading (R) Reading instruction	Literacy programs (R) readings skills, reading education, literacy	Use keywords from Keyword column as needed.
4–12	Grade 4, Grade 5, Grade 6, Grade 7, Grade 8, Grade 9, Grade 10, Grade 11, Grade 12	Elementary school students, Secondary school students	Use keywords from Keyword column as needed.

WWC Evidence Report Protocol for Adolescent Literacy Interventions

<b>Keywords</b>	<b>ERIC Thesaurus Term(s)</b>	<b>PsycINFO Thesaurus Term(s)</b>	<b>Dissertation Abstracts</b>
Reading comprehension	Reading comprehension, (BT) Reading skills, comprehension (R) Reading strategies, Readability, Reading Rate	Reading comprehension, (B) Reading skills, verbal comprehension (R) Readability, reading	Use keywords from Keyword column as needed.
Vocabulary development	Vocabulary development, (R) Lexicography, verbal development (S) vocabulary building	(UT) Vocalization, (R) Communication, oral communication, verbal communication	Use keywords from Keyword column as needed.
Phonics	Phonics, (BT) Phonetics, (R) Aural learning, word study skills	Phonics (R) Reading education	Use keywords from Keyword column as needed.
Reading fluency	Reading fluency, (R) Reading comprehension	Found: Reading materials (R) Reading, readability	Use keywords from Keyword column as needed.
Intervention	Intervention, (R) Disabilities, disadvantaged, educational therapy	No specific term	Use keywords from Keyword column as needed.
Instructional effectiveness	(R) Instructional improvement, program effectiveness, administrator effectiveness, curriculum evaluation educational quality, outcomes of education	Found: Instructional Media	Use keywords from Keyword column as needed.
Assignments	(B) Instruction (R) Homework, reading assignments	No specific term	Use keywords from Keyword column as needed.

WWC Evidence Report Protocol for Adolescent Literacy Interventions

<b>Keywords</b>	<b>ERIC Thesaurus Term(s)</b>	<b>PsycINFO Thesaurus Term(s)</b>	<b>Dissertation Abstracts</b>
Reading achievement	Reading achievement (R) Reading failure, reading improvement, reading skills, achievement gains	Reading achievement (B) Academic achievement (R) Reading	Use keywords from Keyword column as needed.
Elementary school children	(UT) Elementary school students	Found: Elementary school students	Use keywords from Keyword column as needed.
Middle school children	(UT) Middle school students	Found: Middle school students	Use keywords from Keyword column as needed.
High school children	(UT) High school students	Found: High school students	Use keywords from Keyword column as needed.
Improvement	(N) Reading improvement, speech improvement (R) Improvement programs, success	No specific term	Use keywords from Keyword column as needed.
Instructional strategies	(UT) Educational strategies	No specific term	Use keywords from Keyword column as needed.
Educational strategies	Educational strategies, (BT) Educational methods, (R) Instructional design, learning strategies	No specific term	Use keywords from Keyword column as needed.

## WWC Evidence Report Protocol for Adolescent Literacy Interventions

Keywords	ERIC Thesaurus Term(s)	PsycINFO Thesaurus Term(s)	Dissertation Abstracts
Instructional materials	(N) Courseware, Learning Modules, textbooks, workbooks, protocol materials (R) Reading materials, educational games, educational resources, instructional effectiveness, material development	Found: instructional media (N) Reading materials, textbooks	Use keywords from Keyword column as needed.
Schoolwork	(UT) Assignments	No specific term	Use keywords from Keyword column as needed.
Content area literacy	(R) History, Social Sciences, Literacy education, reading skills	No specific term	Use keywords from Keyword column as needed.

### *“Fugitive” or “Grey” Literature*

Our search for fugitive or grey literature encompassed five strategies:

1. Public submissions:

- Materials submitted via the WWC website
- Materials submitted directly to WWC staff

2. Solicitations made to key researchers by the Evidence Report Team

3. Checking websites summarizing research on programs for children and youth (i.e., Best Evidence Encyclopedia (BEE)), prior reviews, and research syntheses (i.e., using the reference lists of prior reviews and research syntheses to make sure we have not omitted key studies).

4. Searches of the websites of all the developers of literacy-related programs/products and interventions for any research or implementation reports.

5. Searches of websites of the following organizations:

- ABT Associates
- Alliance for Excellent Education
- American Enterprise Institute

## WWC Evidence Report Protocol for Adolescent Literacy Interventions

American Institutes for Research (AIR)  
Appalachian Education Laboratory (Edvantia)  
Best Evidence Encyclopedia (BEE)  
Brookings Institution  
Carnegie Corporation  
The Center for Data-Driven Reform in Education (CDDRE) at Johns Hopkins University  
The Center for Comprehensive School Reform and Improvement  
The Center for Research and Reform in Education (CRRE) at Johns Hopkins University  
The Center for Research in Educational Policy (CREP)  
The Center for Social Organization of Schools at Johns Hopkins University  
Center on Education Policy  
The Center on Instruction  
Chapin Hall Center for Children  
Congressional Research Service  
The Florida Center for Reading Research (FCCR)  
Government Accountability Office  
Harvard University  
Heritage Foundation  
Institute for Public Policy and Social Research (IPPSR)  
Learning Point Associates  
MDRC  
Mid-continent Research for Education and Learning  
National Center on Secondary Education and Transition  
National Dropout Prevention Centers  
National Governors' Association  
National Reading Panel  
Pacific Resources for Education and Learning (PREL)  
Public Education Network  
Public Policy Research Institute at Texas A&M University  
Public/Private Ventures (PPV)  
Rand Corporation  
Southwest Educational Development Laboratory (SEDL)  
SRI  
Thomas B. Fordham Institute  
Urban Institute

## REFERENCES

Deshler, D., A. Palinscar, G. Biancarosa, and M. Nair. (2007). *Informed Choices for Struggling Adolescent Readers: A Research-Based Guide to Instructional Programs and Practices*. Newark, DE: International Reading Association.

## WWC Evidence Report Protocol for Adolescent Literacy Interventions

Liberman, I., Shankweiler, D., Fischer, F., & Carter, B. (1974). Explicit syllable and phoneme segmentation in the young child. *Journal of Experimental Child Psychology*, 18, 201-212.

Slavin, R., A. Cheung, C. Groff, and C. Lake. (2008). Effective Reading Programs for Middle and High Schools: A Best-Evidence Synthesis. *Reading Research Quarterly*, vol. 43, no. 3, pp. 290-322.