

Systematic Review Protocol For English Language Arts Interventions

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This protocol guides the What Works Clearinghouse’s (WWC) systematic reviews of evidence on interventions designed to improve the English language and literacy skills of students in kindergarten to grade 12. To conduct the systematic review, this protocol is used in conjunction with version 4.1 of the [WWC Standards and Procedures Handbooks](#) and the [Study Review Protocol](#).

PURPOSE STATEMENT

This review focuses on educational interventions with a primary focus on improving English language and literacy skills—listening, speaking, reading, and writing—of students in kindergarten through 12th grade. These skills are critical to students’ academic achievement and setting them on a path to successful high school graduation and readiness for college and careers.

The following research questions guide the systematic review:

- Which English language arts interventions improve student achievement outcomes?
- Are some interventions effective at improving certain types of English language and literacy skills?
- Are some interventions effective for specific groups of students, such as English learners or students with disabilities?
- Are certain components of interventions more effective than others at improving student achievement outcomes?

The following three processes are key to the WWC’s systematic review process:

1. Identify research on English language arts interventions
2. Screen research for relevance to English language arts and eligibility for WWC review
3. Synthesize and disseminate evidence on English language arts interventions

The following sections describe each process in more detail.

LITERATURE SEARCH

As described in [Section III: Identifying Relevant Literature](#) and [Appendix B: Principles for Searching for Studies to Review](#) of the *WWC Procedures Handbook*, the WWC conducts literature searches in consultation with research librarians. In conducting literature searches under this protocol, the WWC identifies studies on English language arts interventions that it has not yet reviewed. These searches are intended to identify studies that are relevant and useful to educators or other decision makers. To do this, the WWC identifies studies from the following sources:

- Federally funded research available in [Education Resources Information Center](#) (ERIC) or from other sources
- Other research identified in ERIC using key terms
- Research on specific interventions available in ERIC or other databases

See Appendix A for additional details on identifying interventions for systematic review and on the search, screening, and prioritization processes.

SCREENING OF RESEARCH USING ELIGIBILITY CRITERIA

The *WWC Procedures Handbook* discusses the types of research reviewed by the WWC in [Section II: Developing the Review Protocol](#), [Section III: Identifying Relevant Literature](#), and [Section IV: Screening Studies](#). The WWC reviews studies using the [Study Review Protocol](#), which guides the review in conjunction with the *WWC Standards Handbook* and the *WWC Procedures Handbook*. To be included in a systematic review under this protocol, a study must meet both the eligibility criteria in the [Study Review Protocol](#) and the criteria listed below.

Eligible Interventions

The WWC will conduct a systematic review and synthesize evidence for English language arts interventions that meet the following criteria:

- **Intervention type.** Interventions must be an educational product, practice, policy, or program designed to primarily improve students' English language and literacy skills. See version 4.1 of the [Study Review Protocol](#) for definitions of each type of intervention. A wide range of eligible English language arts interventions can be reviewed under this protocol, including:
 - Interventions designed to help children in early elementary grades to develop foundational reading and writing skills (such as knowledge of alphabets and vocabulary, fluent reading, and familiarity with writing conventions) that later help lead to mastering reading and writing skills.
 - Interventions designed for middle and high school students that target improvement and mastery of reading and writing skills.
 - Interventions aimed at helping students with reading difficulties or students with disabilities.
 - Interventions designed to help English learners to acquire and master English language and literacy skills.
 - Interventions designed to improve students' skills in a language other than English if one of the primary goals is also to improve English language and literacy skills. For example, dual language immersion programs that offer instruction in both English and a language other than English are eligible for review since they are designed to improve English language and literacy skills.
- **Setting.** Interventions must be provided in elementary or secondary education school-based settings or other learning environments, including remote instruction, home-schooling programs, after-school, or summer school. Interventions must have a connection to learning in an elementary or secondary education program.

- **Delivery.** Interventions may be implemented schoolwide, at the classroom level, with small groups of students, or with individual students. See the [Study Review Protocol](#) for definitions of each delivery method.
- **Replicability.** An intervention must be also replicable (that is, it must be possible to reproduce the delivery of the intervention in another setting). To ensure that the intervention is replicable, the following characteristics of an intervention must be documented:
 - Intervention goals, including the targeted student skills and teacher practices
 - The target population of the intervention
 - The method of delivery, which is the unit of delivery of the intervention (for example, whole group versus individual)
 - The frequency and duration of the intervention
 - Key intervention components, including activities and characteristics of activities, as well as the strategies used to improve the targeted skills
 - Resources (including technology, facilities, personnel, and other materials) needed to implement the intervention
 - Qualifications of individuals delivering or administering the intervention

The review will also document the resources (and associated costs) of implementing the interventions. An intervention may be excluded from a systematic review if little is known about the resources needed to implement the intervention with fidelity.

Eligible Populations

To be included in a systematic review under this protocol, studies must examine the effectiveness of an intervention administered to:

- **Students.** Students and other learners in grades K-12 (ages 5-21, when grade is not specified) in elementary or secondary education programs
- **Staff.** Teachers, school leaders, other educators, or home- or school-based service providers

English language arts interventions might be designed to improve student learning for all students, or designed specifically to meet the needs of English learners, students with disabilities, or those with English language or literacy difficulties. In addition, interventions for early grades that focus on developing reading and writing skills might differ substantively from those for upper grade levels that emphasize reading comprehension and mastering literacy skills (Slavin et al., 2008; Slavin et al., 2009). Correspondingly, when a study is being reviewed as part of a systematic review of an English language arts intervention under this protocol, the WWC will review findings reported for the following subpopulations of interest:

- **Beginning readers.** Beginning readers are students in kindergarten to grade 3 (or ages 5-8).
- **Adolescent readers.** Adolescent readers are students in grades 4-12 (or ages 9-21).
- **Students at-risk of having English language and literacy difficulties** are students who display English language and literacy skills that are below their age or grade level according to a standardized baseline measure.

- **English learners.** English learners are students with a primary language other than English who have a limited range of listening, speaking, reading, or writing skills in English. English learners could be described using a variety of terms, including limited English proficient, English language learner, non-native English speaker, language minority, second language learner, or dual language learner.
- **Students with disabilities.** Students with disabilities are students who are eligible for special education and related services under the reauthorized Individuals with Disabilities Education Act of 2004 (IDEA 2004), most recently amended through Public Law 114-95, the Every Student Succeeds Act, in 2015. IDEA defines the term “child with disability” as a child with (i) with intellectual disabilities, hearing impairments (including deafness), speech or language impairments, visual impairments (including blindness), serious emotional disturbance (referred to as “emotional disturbance”), orthopedic impairments, autism, traumatic brain injury, other health impairments, or specific learning disabilities; and (ii) who, by reason thereof, needs special education and related services (U.S. Department of Education, n.d.). These students typically have an Individualized Education Program (IEP) or a 504 Plan.

Eligible Research

Studies included in a systematic review under this protocol must meet the eligibility criteria in the [WWC Procedures Handbook](#) and the [Study Review Protocol](#), and the following additional criteria:

- **Time frame.** The study must have been released within the 15 years preceding the year of the review (for example, in 2006 or later for reviews occurring in 2021) to ensure that the intervention and its research base are timely. Research experts may advise a longer time frame for an intervention if necessary.
- **Implementation of intervention components.** Studies must describe the key components of the intervention and how each was implemented with adequate detail so reviewers can accurately document the intervention.
- **Intervention version.** Studies must implement a version of the intervention that is similar to the version available from the developer or publisher at the time of the review. To be considered the same version as the available intervention, the intervention implemented in the study must share key intervention components, goals, and methods of delivery, and be delivered with similar frequency and duration, with only minor differences.

Eligible Outcomes

English language arts interventions may affect outcomes in multiple domains. Table 1 lists the outcome domains from the [Study Review Protocol](#) that will be included in systematic reviews under this protocol.

Table 1. Eligible outcome domains for systematic reviews of English language arts interventions

Oral Language Skills	Writing Skills	General Content Knowledge Outcomes
<ul style="list-style-type: none"> Expressive communication Receptive communication 	<ul style="list-style-type: none"> Writing conventions Writing productivity Writing quality 	<ul style="list-style-type: none"> General academic achievement General mathematics achievement General science achievement General social studies achievement
Reading Skills	Other Language Arts Outcomes	
<ul style="list-style-type: none"> Alphabetics Reading fluency Vocabulary Reading comprehension 	<ul style="list-style-type: none"> General literacy achievement Proficiency in the English language Proficiency in a language other than English 	

Note: For each study, findings from all outcome domains from version 4.1 of the [Study Review Protocol](#) will be reviewed and reported, but only findings from the outcome domains listed in Table 1 will be synthesized in reports under this protocol. English language and literacy outcomes assessed using alternative writing codes—such as Braille—are eligible for review and will be reviewed under the relevant English language or literacy domain. Similarly, general content knowledge outcomes that are assessed in a language other than English are eligible for review and will be reviewed under the relevant domain. For example, outcomes measuring general mathematics proficiency assessed in Spanish will be reviewed under the general mathematics achievement domain, not under the proficiency in a language other than English domain.

SYNTHESIS AND DISSEMINATION OF FINDINGS

Determining the number of reports. The WWC will present findings from its systematic review of an English language arts intervention in one or more reports, referred to as “intervention reports.” The WWC will determine the number and scope of the intervention reports once a set of eligible studies that meet WWC standards is identified.

Reporting on findings for different subpopulations of interest. If findings for more than one subpopulation of interest are available, the WWC may produce multiple intervention reports (one for each subpopulation), or findings from multiple populations may be combined in one intervention report. The WWC will determine whether to summarize findings in one or more reports based on the number of studies that meet WWC standards for each subpopulation of interest, and whether the implementation of the intervention differs across these subpopulations. When possible, findings will be summarized separately for (1) beginning readers (grades K-3), (2) adolescent readers (grades 4-12), (3) students at risk for English language and literacy difficulties according to a standardized baseline measure, (4) English learners, non-native English speakers, or former English learners, and (5) students with disabilities. For some interventions, however, it will not be possible to disaggregate intervention effects for multiple subpopulations of interest.

REFERENCES

- Slavin, R.E., Cheung, A., Groff, C., & Lake, C. (2008). Effective reading programs for middle and high schools: A best evidence synthesis. *Reading Research Quarterly*, 43(3), 290-322.
- Slavin, R.E., Lake, C, Chambers, B., Cheung, A., & Davis, S. (2009). Effective reading programs for the elementary grades: A best-evidence synthesis. *Review of Educational Research*, 79(4), 1391-1466.
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APPENDIX A. PRIORITIZING RESEARCH FOR REVIEW AND SYNTHESIS

This appendix describes the processes for prioritizing studies for WWC review, and for selecting interventions for systematic reviews to inform “what works” in improving English language and literacy skills. The WWC prioritizes systematic reviews of evidence that are most likely to be relevant and useful to educators and other decision makers. The WWC also prioritizes for review studies that have not already been reviewed by the WWC.

To select studies and interventions for WWC review, the WWC uses the five-step process outlined below. Studies are identified in Steps 1 and 2, scored in Step 3, and reviewed in Step 4 on a rolling basis. The WWC then identifies interventions for systematic reviews and disseminates the findings in Step 5.

Step 1: Identify studies for possible WWC review. The WWC identifies studies on English language arts interventions. This step is intended to identify studies that are relevant and useful to educators or other decision makers through four literature search processes:

- Search ERIC for IES-funded research not yet reviewed by the WWC.
 - This search will be restricted to research funded by the U.S. Department of Education (ED), Institute of Education Sciences (IES) using the funded:y search flag.
 - This search will be conducted so that all IES-funded research can be screened for possible review. Therefore, this search will not be limited by key terms related to English language arts interventions specifically.
 - The review team will expand this search to include all ED-funded research when such an option becomes available in ERIC. ERIC does not currently encode whether research was conducted with funding from other ED grants. For this reason, the review team will supplement this search with the lists of ED-funded studies described below.
- Search ERIC using key terms for English language arts research not yet reviewed by the WWC.
 - The review team will search ERIC using specific key terms to identify recent research on English language arts interventions.
 - The WWC will use ERIC thesaurus terms and additional key search terms related to impact, study design, outcomes, and population and disability terms (if needed) to search key ERIC fields, including the title, abstract, and descriptors. Appendix B provides examples of the search terms that this review may use to focus the literature search. The ERIC database searches abstracts but does not search the full text of studies. Because abstracts are less likely to include the search terms than the full text, the WWC will identify studies that have terms from one or more of the categories in Appendix B, Table B.1 (such as impact and study design terms) to ensure that the search captures all relevant studies. To ensure the search focuses on English language arts research, the WWC will require the study abstract to contain at least one of the terms from the outcomes or population categories listed in Table B.1. To address a high volume of identified research, the review may prioritize screening of studies that include terms from more than one of the categories listed in Table B.1.
- Search ERIC and other key databases for research on specific interventions, such as those identified by research experts in English language arts, particularly from those who work closely with practitioners.
 - After identifying interventions for improving English language and literacy skills, the review team will conduct an intervention name search in ERIC and other databases listed in

Appendix C. The team may also search additional websites that might be relevant to a particular intervention.

- For some interventions, the literature search may result in many studies unrelated to the intervention. For example, this often occurs when the intervention name includes commonly used terms. These searches may be limited by specific keywords listed in Appendix B.
- Search for lists of studies funded by a range of ED grants or other federal agencies.
 - ED grants, including Effectiveness, Efficacy, Replication, and Scale-Up grants, funded by ED centers such as the National Center for Education Research and the National Center for Special Education Research.
 - Additionally, the team will screen studies from other ED grants that have provided technical assistance for grantees to design evaluations to meet WWC standards, such as the Investing in Innovation program, the Education Innovation and Research program, the Supporting Effective Educator Development program, and First in the World.
 - Finally, the review team will aim to identify federally funded education research from outside of ED, such as from the National Institutes of Health and the National Science Foundation.

Step 2: Narrow the list of studies for possible WWC review. The review team determines whether studies have been previously reviewed by the WWC and screens studies on the basis of eligibility criteria under the [Study Review Protocol](#), such as whether the study examines the effects of an eligible intervention on an eligible outcome measure. The review team then screens the study for eligibility under this English language arts protocol, such as whether the intervention in the study is intended to improve English language and literacy skills. To address a high volume of identified research, the WWC may prioritize screening recent studies or those for certain education levels, topic descriptors, or other characteristics.

Step 3: Score and select studies for WWC review. As eligible studies are identified in Step 2, the WWC will assign a prioritization score to each study on a rolling basis. The score is designed to help prioritize studies for WWC review and identify eligible research that is of high quality and interest to a wide range of WWC stakeholders. The WWC gives each eligible study a score based on a number of factors (see Table A.1). The WWC then ranks the studies from highest to lowest according to their scores. The WWC will begin reviewing studies with the highest prioritization scores on a rolling basis, while screening and scoring additional studies. For any studies that receive the same score, the study that was conducted more recently will receive priority. The score of each study is calculated on a scale of 0 to 8 points, as follows:

Table A.1. Study characteristics used to determine prioritization score for each study

Points	Study characteristic	Justification
+2	The study is a randomized controlled trial, regression discontinuity design, or single-case design and is therefore eligible to receive the highest study rating.	Stronger research designs provide more credible evidence and are more likely to meet standards. Quasi-experimental design studies are eligible for review but will not receive these points.
+1	The study relies on data from multiple sites and the analytic sample for the study includes at least 350 individuals for group design and regression discontinuity design studies or 20 individuals for single-case design studies.	These studies provide evidence that is more likely to apply to different settings or populations of teachers or students.
+1	The study was funded by ED.	Research produced with support from ED is likely to be of great interest to a wide range of stakeholders.
+1	The study is already in ERIC with full text or with a direct link to the text in a journal or another publicly available source.	Research in ERIC is more accessible to educators and other decision makers.
+1	The intervention is widely used according to context experts or practitioner surveys.	Evidence on interventions in wide use is likely to be of interest to educators and other decision makers. For example, the RAND American Educator Panels are one source for this information.
+1	The WWC has not released an intervention report on the same intervention in the study.	The WWC prioritizes research that could contribute to new systematic reviews over research that might be included in an update to an existing systematic review.
+1	The WWC has previously reviewed at most one study of the same intervention that met WWC standards.	The WWC prioritizes reviewing studies of many different interventions. If an intervention is selected for systematic review in Step 5 , the WWC will review all research on the intervention.

Step 4: Conduct WWC study reviews. The WWC will review the studies with the highest prioritization scores from Step 3 on an ongoing basis using the [Study Review Protocol](#).

Step 5: Disseminate findings and identify topics for intervention reports and other systematic review products. The WWC will disseminate its findings and conduct systematic reviews of evidence through one or more of the following:

- **Single-study reviews.** The WWC will monitor recently reviewed studies and will disseminate relevant findings from single-study reviews through IES News Flashes and social media posts.
- **Intervention reports.** The WWC will monitor potential interventions for which to conduct systematic reviews:
 - In general, if only one study of an intervention meets WWC standards, or if the pooled sample size across all studies that meet WWC standards is fewer than 350 individuals for group design and regression discontinuity design studies or 20 individuals for single-case design studies, then the WWC will review those studies but will not prepare an intervention report.
 - When at least two studies of the same intervention meet WWC standards (version 2.1 or higher) and both are not already included in an existing WWC intervention report, the WWC will identify the intervention as a candidate for an intervention report. Once it has identified an intervention, the WWC may conduct a literature search to identify all research in ERIC and other databases specified in this protocol on the intervention (if one was not already

conducted in **Step 1**). The WWC will then calculate a prioritization score for the intervention, which is a sum of the study-level prioritization scores calculated in **Step 3**, including any studies previously reviewed by the WWC that meet WWC standards and excluding any studies that do not meet WWC standards or that are already included in an intervention report.

- IES reviews the prioritization scores and approves the production of intervention reports on a rolling basis.
- When IES approves an intervention report, the WWC will review all eligible studies of the intervention not already reviewed by the WWC. The WWC will also use the Study Review Protocol to update reviews of any studies of the intervention previously reviewed under a different protocol. The WWC may also review additional supplementary findings, including findings for groups of students outlined in this protocol (such as English learners or students with disabilities).
- **Other products.** The WWC will also develop evidence summaries across English language arts interventions to provide educators and other decision makers with information about which components of interventions were most effective. These summaries may include meta-analytic syntheses of findings across branded and non-branded interventions. The WWC will highlight the strength of evidence by intervention component or across different student populations and outcome domains, as well as areas where the WWC has limited evidence, which may inform future literature searches.

APPENDIX B. SEARCH TERMS USED IN LITERATURE SEARCH

As described in Appendix A, the English language arts review will use four literature search processes to identify research that may be of interest to practitioners and decision makers. This appendix describes example search terms for the literature searches.

Table B.1. Example search terms for the English language arts review

Category	Search terms
Impact	Achiev*, affect*, benefit*, decreas*, effect*, efficac*, evaluat*, gain, growth, impact*, improv*, increas*, progress, reduc*, success*
Study design	ABAB, alternating treatment*, assess*, assign*, causal, changing criteri*, comparison group*, control*, counterfactual, crossover design*, difference in differences, experiment*, matched, meta analy*, metaanaly*, multi element, multielement, multiple baseline, multiple probe*, post test*, posttest*, pre test*, pretest*, quasi experimental, quasiexperimental, random*, regression discontinuity, reversal design*, simultaneous treatment*, single case, single subject, treatment, withdrawal design*
Outcomes	Alphabetics, aural learning, communication, comprehension, decoding, ELA, English language arts, fluency, language, letter identification, lexicography, literacy, oral language, phonemic, phonetics, phonics, phonological, print awareness, print knowledge, readability, reading, speaking, speech, verbal development, vocabulary, vocalization, word recognition, writing
Population	after school*, afterschool*, child*, dual language learner*, elementary school*, English as a second language, English for speakers of other languages, English language learner*, English learner*, ESL, ESOL, grade*, high school*, home school*, junior high, K-12, kindergart*, language minorit*, limited English proficien*, middle school*, non-English speaker, non-native English speaker, primary school*, pupil*, reclassified fluent English proficien*, RFEP, second language learner*, struggling reader*, student*, summer school*

Note: The asterisk (*) ensures the search returns any word that begins with the specified letters.

APPENDIX C. DATABASES USED IN LITERATURE SEARCH

As described in Appendix A, the WWC will search ERIC and the following electronic databases and websites for research on English language arts interventions. The WWC may also search additional websites that might be relevant to particular interventions.

Table C.1. Databases and websites for the English language arts review

Category	Websites
Electronic databases	Academic Search Premier, E-Journals, EconLit, Education Research Complete (EBSCO), ERIC, ProQuest Dissertations & Theses, APA PsycInfo, SAGE Journals Online, Scopus, SocINDEX, WorldCat
Websites of federal agencies	Congressional Research Service (CRS), Government Accountability Office (GAO), Institute of Education Sciences (IES), National Institute of Child Health and Human Development (NICHD), National Science Foundation (NSF)
Websites of professional associations	American Association of Applied Linguistics (AAAL), American Educational Research Association (AERA), American Evaluation Association (AEA), American Federation of Teachers (AFT), Association for Public Policy Analysis and Management (APPAM), Council for Exceptional Children, International Literacy Association, Literacy Research Association, National Association of Bilingual Education (NABE), National Association of Elementary School Principals, National Association of Secondary School Principals, National Association of State Boards of Education (NASBE), National Council of Teachers of English (NCTE), National Education Association (NEA), National Governors Association, The School Superintendent Association, Society for Research on Educational Effectiveness (SREE), TESOL International Association
Websites of universities and other research organizations	Abt Associates, Alliance for Excellent Education, American Enterprise Institute, American Institutes for Research (AIR), Best Evidence Encyclopedia, The Brookings Institution, Carnegie Corporation of New York, Center for Applied Linguistics, Center for Data-Driven Reform in Education (CDDRE) at Johns Hopkins University, Center for Research and Reform in Education at Johns Hopkins' School of Education, Center for Research in Educational Policy (CREP), Center for Research on Education, Diversity and Excellence (CREDE), Center for the Success of English Learners (CSEL), Center on Education Policy, Center on Instruction, Cochrane Database of Systematic Reviews, Consortium for Policy Research in Education (CPRE), Florida Center for Reading Research (FCRR), Harvard Graduate School of Education, Heritage Foundation, Hoover Institution, ICF International, IMPAQ International, Iowa Reading Research Center, Language and Literacy Research Center (LLRC) at the University of Maryland, Lead for Literacy, Literacy Development and Research Center (LDRC) at Old Dominion University, Literacy Research Center and Clinic (LRCC) at the University of Wyoming, Mathematica (formerly known as Mathematica Policy Research), MDRC, Minnesota Center for Reading Research (MCRR), National Center on Improving Literacy, National Center on Intensive Intervention, National Center on Response to Intervention (RtI), National Clearinghouse for English Language Acquisition (NCELA), Pacific Resources for Education and Learning (PREL), Policy Study Associates, Public Policy Research Institute at Texas A&M University, RAND Corporation, Southwest Educational Development Laboratory (SEDL), SRI International, The Thomas B. Fordham Institute, Understanding Language (Stanford University), The University of California–Los Angeles (UCLA), Urban Institute, WestEd, Westat, Wisconsin Center for Education Research (WCER)