

Finding Tier 1, Tier 2, and Tier 3 Evidence from the *What Works Clearinghouse*TM

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Hello. My name is Jonathan Jacobson.

I am the Branch Chief for Knowledge Synthesis with the National Center for Education Evaluation and Regional Assistance at the Institute of Education Sciences or IES. IES is the research, statistics, and evaluation arm of the U. S. Department of Education.

My presentation today is on finding Tier 1, Tier 2, and Tier 3 evidence from the What Works Clearinghouse.

Goals of This Presentation

Understand how the U. S. Department of Education (ED) *defines* and *distinguishes* Tier 1 (strong), Tier 2 (moderate), and Tier 3 (promising) evidence for its discretionary grant programs

Learn how to use the *What Works Clearinghouse*TM (WWC) website, <https://whatworks.ed.gov>, to find reviews of individual studies and WWC publications providing these levels of evidence

Learn about other evidence-related resources on the WWC website

This presentation has three main goals.

The first goal is to help you to understand how the U. S. Department of Education (ED) defines and distinguishes the top three levels of evidence for its discretionary grant programs:

- Tier 1 or strong evidence
- Tier 2 or moderate evidence, and
- Tier 3 or promising evidence.

The second goal is to help you learn how to use the What Works Clearinghouse website, whatworks.ed.gov, to find reviews of individual studies and WWC publications providing these levels of evidence.

The third goal is to help you become aware of other evidence-related resources on the WWC website.

Basis of U. S. Department of Education (ED) Evidence Definitions and Evidence Determinations

ESSA = *Every Student Succeeds Act of 2015*, 20 USC 7801 (21),
<https://www.ed.gov/ESSA>

EDGAR = *Education Department General Administrative Regulations*, CFR 34
CFR 77.1, <https://www.ecfr.gov/current/title-34/part-77>

WWC = *What Works Clearinghouse*TM, <https://whatworks.ed.gov>, an initiative of
ED's Institute of Education Sciences (IES), <https://ies.ed.gov/>

The evidence definitions and evidence determinations of the U. S. Department of Education are based on three major sources of information.

The first source is ESSA, the Every Student Succeeds Act of 2015, which reauthorized the Elementary and Secondary Education Act. This law introduced statutory definitions of evidence for use by the Department and grantees under that act.

The second source is EDGAR, the Education Department General Administrative Regulations. EDGAR includes evidence definitions that operationalize the ESSA definitions for possible use by all ED discretionary grant programs.

The third source is the What Works Clearinghouse, an initiative of IES that began in 2002. The WWC's mission is to review education research on the effectiveness of education policies, programs, products, and practices to see what works to improve student outcomes and other outcomes relevant to education.

Sources of Evidence Definitions

ESSA Evidence Definitions **EDGAR Evidence Definitions**

ESEA formula grants ESEA discretionary grants Non-ESEA discretionary grants

ESSA definitions apply to *both* formula grants *and* discretionary grants authorized by the Elementary and Secondary Education Act (ESEA).

EDGAR definitions are aligned with *ESSA* but specify additional details. *EDGAR* definitions apply to *both* ESEA *and* non-ESEA discretionary grant programs, *if* those definitions are cited in the relevant Notice Inviting Applications.

Evidence tier designations on the WWC website are consistent with *EDGAR*; their use is *optional* for decision makers not applying for ED discretionary grants.

 IES Institute of Education Sciences 4

This Venn diagram shows how ESSA’s evidence definitions and EDGAR’s evidence definitions apply to different sorts of programs funded by the U. S. Department of Education.

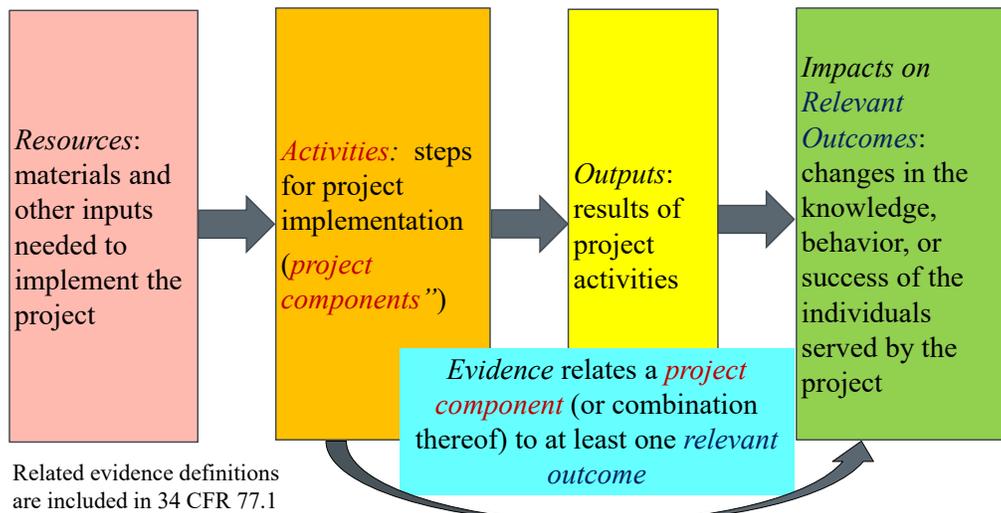
ESSA definitions apply to all programs authorized by the Elementary and Secondary Education Act or ESEA, both formula grants such as Title I grants to states, and discretionary grants such as the Education Innovation and Research (or EIR) and Supporting Effective Educator Development (or SEED) grant programs.

EDGAR definitions are aligned with ESSA but specify additional details to help the Department assess evidence for its discretionary grant programs. These definitions apply to ESEA discretionary grant programs such as EIR and SEED, and also to certain non-ESEA discretionary grant programs such as the Talent Search program authorized under the Higher Education Act. The Department specifies in the Notice Inviting Applications which evidence definitions apply to that grant program.

The evidence tier designations on the WWC website refer to evidence tiers defined in ESSA. These designations are consistent with the detailed definitions in EDGAR, as well as with non-regulatory guidance the Department released in 2016 on using evidence to strengthen education investments. The use of these designations is optional for decision makers not applying for ED discretionary grants.

Evidence Relates *Project Activities* to *Relevant Outcomes*

Logic model [theory of action] framework from “Logic Models: A Tool for Effective Program Planning, Collaboration, and Monitoring,” <https://ies.ed.gov/pubsearch/pubsinfo.asp?pubid=REL2014025>



A logic model is a framework for displaying the theory of action and theory of change behind an education project. Such a framework, which can inform both the design of a project and the design of a project evaluation, includes 4 major elements:

--“Resources” are the materials and other inputs needed to implement the project, such as funding, personnel, facilities, technology, legal authority, and community support.

--“Activities”, also known as project components, are the steps for implementing the project, such as strategizing with stakeholders, recruiting and training staff, delivering instruction to students, using commercially available products, and gathering and analyzing data on project operations and outcomes.

--“Outputs” are results of project activities once implementation of the project has begun, such as the number of personnel trained, the number of students receiving instruction, and the quality of implementation of project components.

--“Impacts on Relevant Outcomes” are changes in the knowledge, behavior, or success of the individuals served by the project, such as changes in students’ levels of academic achievement or their rates of degree completion.

“Evidence” in this context relates project activities to relevant outcomes. A study may offer evidence on the changes arising from a single component of a project, or from a combination of project components, or from the project as a whole.

ESSA Definitions of Individual Studies Providing Tier 1, Tier 2, or Tier 3 Evidence

Tier 1, Tier 2, and Tier 3	Tier 1 Strong Evidence	Tier 2 Moderate Evidence	Tier 3 Promising Evidence
Evidence includes a <i>statistically significant</i> and <i>positive</i> [favorable] finding from at least one...	“well-designed and well-implemented experimental study”	“well-designed and well-implemented quasi-experimental design study”	“well-designed and well-implemented correlational study with statistical controls for selection bias”

NOTE: Tier 4 is evidence that “*demonstrates a rationale*, based on high-quality research findings or positive evaluation [findings], that [an] activity, strategy, or intervention is likely to improve student outcomes or other relevant outcomes”

The ESSA statute defines and distinguishes 4 tiers of evidence in education.

Tiers 1, 2, and 3 all require a study to report a statistically significant and positive—that is, favorable—effect of a project activity, strategy, or intervention on a student outcome or other outcome relevant to education.

For Tier 1 or Strong Evidence, the favorable finding needs to be from at least one well-designed and well-implemented experimental study.

For Tier 2 or Moderate Evidence, the favorable finding needs to be from at least one well-designed and well-implemented quasi-experimental design study.

For Tier 3 or Promising Evidence, the favorable finding needs to be from at least one well-designed and well-implemented correlational study with statistical controls for selection bias.

ESSA describes Tier 4 evidence as evidence that “*demonstrates a rationale*, based on high-quality research findings or positive evaluation [findings], that an activity, strategy, or intervention is likely to improve student outcomes or other relevant outcomes.” Note that Tier 4 evidence does NOT need to be based on a particular type of study design and does NOT need to include a statistically significant finding.

What Works ClearinghouseTM Standards for Identifying “Well-Designed” and “Well-Implemented” Experimental and Quasi-Experimental Design Studies

Developed by panels of experts for different types of *impact study designs*

Focus on *internal validity* of impact estimates (whether the estimate is likely to be unbiased)

Applied by teams of certified reviewers using a study review protocol to rate eligible studies

The WWC will assess studies as *strong or moderate evidence* in FY 2022 grant competitions using previous WWC reviews under the *Version 2.1* or higher standards, and new reviews of studies under the *Version 4.1 Handbooks* and the Study Review Protocol, Version 1.0



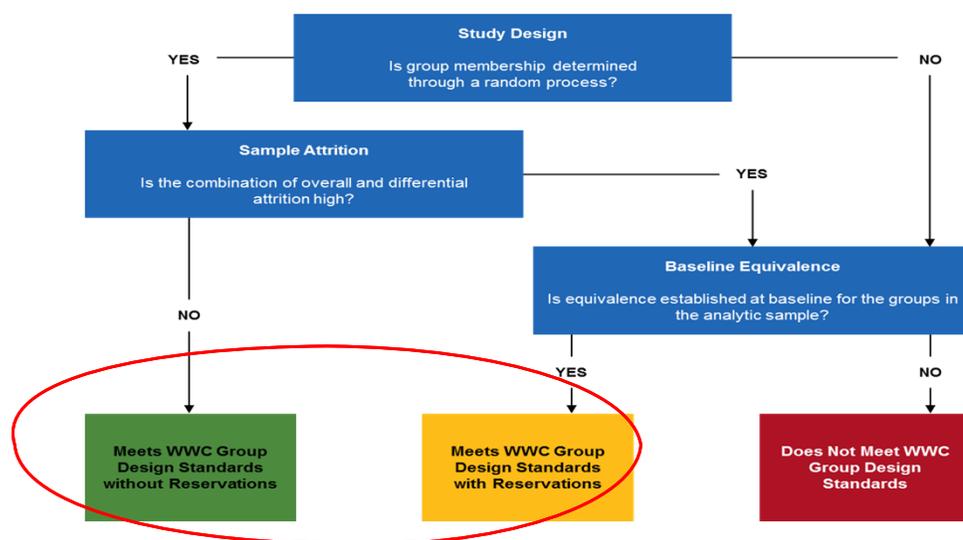
How does ED assess whether a study of the effects of an education activity, strategy, or intervention is “well-designed” and “well-implemented”? Here is where the What Works Clearinghouse plays a role for the Department’s assessments of evidence for its discretionary grant programs. The WWC’s standards have been developed by panels of experts for different types of impact study designs, such as randomized controlled trials (or RCTs), regression discontinuity design studies (or RDDs), single-case design studies (or SCDs), and quasi-experimental designs studies (or QEDs).

The focus of the WWC’s design standards is on assessing the internal validity of impact estimates, that is, whether those estimates are likely to be unbiased.

Teams of certified WWC reviewers use the WWC Standards and Procedures Handbooks with a study review protocol to screen, review, and rate eligible studies.

For Fiscal Year 2022, the WWC plans to assess studies as strong or moderate evidence for ED grant competitions using previous WWC reviews under version 2.1 or higher standards, and to conduct new reviews of studies using the version 4.1 Handbook and the Study Review Protocol, Version 1.0.

How the WWC Rates a Group Design Study (Randomized Controlled Trial / RCT or Quasi-Experimental Design / QED)



This flowchart displays how the WWC rates a group design study, which could be either a randomized controlled trial, or a quasi-experimental design study.

WWC reviewers first assess whether assignment to the intervention group was determined through a random process. If it was, and rates of overall and differential sample attrition are low, then the study can receive the highest study rating: “Meets WWC Standards without Reservations.” Since they involve controlled assignment, regression discontinuity design studies and single-case design studies are also eligible to receive this highest study rating, but the WWC reviews these studies under separate design standards, as described in the WWC Standards Handbook.

If a group design study did not use controlled assignment, or was an RCT with high attrition, then it can be reviewed as a quasi-experimental design study. To be able to receive the second highest study rating, “Meets WWC Standards with Reservations,” QEDs need to demonstrate equivalence at baseline—that is, before introduction of the intervention—between key characteristics for the intervention group and for the comparison group. These characteristics are specified in the study review protocol.

If a group design study being reviewed as a QED study cannot establish baseline equivalence, it is rated, “Does Not Meet WWC Design Standards.”

Evidence from WWC Reviews of Individual Studies

The WWC reviews education research studies for a variety of reasons, for example, when conducting *systematic reviews* of research on a topic as specified in a practice guide review protocol, or when reviewing *studies cited by applicants* for ED discretionary grants

Only *publicly available, original impact studies* are eligible for WWC review; studies in books or behind paywalls are eligible, as well as studies available for free download

The WWC only reports findings from studies that are eligible under the relevant study review protocol, such as the Study Review Protocol, and that are rated either *Meets WWC Standards without Reservations* or *Meets WWC Standards with Reservations*

The *study rating* assigned by the WWC is separate from whether the findings of the study are favorable and indicate a positive impact of the intervention on a relevant outcome

The WWC reviews education research studies for a variety of reasons, for example, when conducting systematic reviews of research on a topic as specified in a practice guide review protocol or for an intervention report, or when reviewing studies funded by the Department or cited by applicants for ED discretionary grants.

Only publicly available, original impact studies are eligible for WWC review. Studies in books or behind paywalls are eligible, as well as studies available for free download on the internet. Where possible, the WWC aims to review studies that are also available in the Education Resources Information Center (or ERIC), which is a searchable online database of education research studies maintained by IES.

The WWC only reports findings from studies that are eligible under the relevant study review protocol, such as the Study Review Protocol, and that are rated either Meets WWC Standards without Reservations or Meets WWC Standards with Reservations.

The study rating assigned by the WWC is separate from whether the findings of the study are favorable and indicate a positive and statistically significant impact of the intervention on a relevant outcome. In other words, the WWC study rating assesses the quality of the study, not the effectiveness of the intervention included in a study.

EDGAR Definitions of Individual Studies Providing Tier 1, Tier 2, or Tier 3 Evidence

Study Criterion	Tier 1 Strong Evidence	Tier 2 Moderate Evidence	Tier 3 Promising Evidence
Types of qualifying study designs	Experimental studies: randomized controlled trials (RCTs); regression discontinuity designs (RDDs); and single-case designs (SCDs)	Experimental studies (RCTs, RDDs, or SCDs); and quasi-experimental design studies (QEDs)	Experimental studies (RCTs, RDDs, or SCDs); QEDs; and other designs with statistical controls for selection bias
Minimum WWC study rating	<i>Meets WWC Standards [version 2.1 or higher] without Reservations</i>	<i>Meets WWC Standards [version 2.1 or higher] with Reservations</i>	Not specified— <u>only studies meeting WWC standards have findings on the WWC website</u>
Relevant finding	Statistically significant and positive	Statistically significant and positive	Statistically significant and positive
Multi-site sample and large sample	More than one school, district, or state and 350+ individuals**	More than one school, district, or state and 350+ individuals**	Not specified
Overlap of	Populations <u>and</u> settings	Populations <u>or</u> settings	Not specified

**Multiple studies can be combined to provide a multi-site sample and a large sample, provided the other conditions are met

As I noted previously, the EDGAR definitions of evidence operationalize the ESSA definitions by adding more details on what makes a study “well-designed” and “well-implemented.” For Tier 1 or strong evidence, eligible experimental designs include randomized controlled trials, regression discontinuity design studies, and single-case design studies. For Tier 2 or moderate evidence, quasi-experimental design studies are also eligible for consideration. For Tier 3 or promising evidence, ED may consider correlational studies with statistical controls for selection bias, such as studies that rely on regression adjustments to compare an intervention group with a comparison group.

Studies providing Tier 1 evidence under EDGAR need to Meet WWC Standards without Reservations when reviewed under version 2.1 or higher of the WWC Handbooks. Studies providing Tier 2 evidence need to Meet WWC Standards with Reservations when reviewed under version 2.1 or higher of the WWC Handbooks. Studies providing Tier 3 evidence do not need to meet WWC standards, since the WWC does not have design standards for correlational studies. However, only studies meeting WWC standards have findings reported on the WWC website.

All three tiers of evidence need to be from studies with a statistically significant and positive finding on a relevant outcome. For Tier 1 and Tier 2 evidence, positive findings cannot be overridden by negative findings on other relevant outcomes, either in the study itself, or in a WWC intervention report.

Tier 1 evidence and Tier 2 evidence under EDGAR need to be based on a multi-site sample—consisting of more than one state, district, or school—and on a large sample, consisting of 350 or more students or other individuals. If multiple studies meet the other conditions of the definition for Tier 1 or Tier 2 evidence, then these studies may be combined to meet the multi-site sample and large sample requirements. Studies conducted in a single site or with small samples may provide Tier 3 evidence.

For Tier 1 evidence, EDGAR specifies that both the populations and settings in the study need to overlap with those proposed for a project. For Tier 2 evidence, EDGAR specifies that either the populations or settings in the study need to overlap with those proposed for a project. For example, a study of Grade 9 through 12 students in urban schools would overlap with the population of a rural school district but not the setting. The WWC provides

information in its reviews and on its website so decision makers can assess overlap of populations and settings.

Find the quick link to the Reviews of Individual Studies page on the WWC website

IES WWC What Works Clearinghouse

Select topics to **Find What Works** based on the evidence

- Literacy
- Mathematics
- Science
- Behavior
- Children and Youth with Disabilities
- English Learners
- Teacher Excellence
- Charter Schools
- Early Childhood (Pre-K)
- K-12 Kindergarten to 12th Grade
- Path to Graduation
- Postsecondary

Practice Guides: evidence-based recommendations for educators to improve student outcomes.

Intervention Reports: summaries of findings of the highest-quality research on a given intervention or practice in education.

Reviews of Individual Studies: summaries of individual studies that have been reviewed by the WWC.

Data From Study Reviews: downloadable data from WWC study reviews.

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To search for reviews of individual studies on the WWC website, go to whatworks.ed.gov, and look for the Quick Links listed at the bottom of the landing page. Click on the link labelled “Reviews of Individual Studies.”

WWC | Reviews of Individual Studies

Mathematica WebEx - Meeting

ies.ed.gov/ncee/wwc/ReviewedStudies/#/FWWFilterId:3%7COnlyStudiesWithPositiveEffects:false%7CSetNumber:1%7CEssaRatingId:1,2,3

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REVIEWS OF INDIVIDUAL STUDIES

Searching for WWC's Reviews of Individual Studies

Introduction to the WWC's Reviews of Individual Studies

Use this search page to find *individual studies* that have been reviewed by the WWC and categorized into ESSA evidence tiers. Select options from the filters or enter author/title information into the search box. The resulting list of studies connects you to more information, including whether the study has been included in a WWC publication that summarizes evidence from more than one study.

All Ratings All Designs (for studies meeting standards)

Literacy Evidence Rating (3 options selected)

Select studies with at least one statistically significant and positive finding

Search WWC Reviews

Tier 1 Strong Evidence
 Tier 2 Moderate Evidence
 Tier 3 Promising Evidence
 No Evidence Tier Assigned

Tier 1-3 evidence

Displaying 1 - 10 of 105 results

Type here to search

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The Reviews of Individual Studies page allows you to filter studies by their WWC study rating, by their type of study design, by topic area, by evidence tier rating, by whether the study includes at least one statistically significant and positive finding confirmed by the WWC, and by any other search terms you choose to enter.

In the example displayed on this slide, I'm searching for studies of literacy interventions that could provide Tier 1, Tier 2, or Tier 3 evidence. In this case, I select "Literacy" as the topic area and check the box for studies with Tier 1, Tier 2, or Tier 3 evidence. My search yielded 105 studies when I created this screen shot. This number is likely to increase over time, because the WWC continues to review additional studies and add the results of those reviews to the WWC online database.

Note that there may be studies that would meet the EDGAR definition of Tier 3 evidence but wouldn't meet WWC standards or even be eligible for WWC review. Findings for those studies are *not* displayed on the WWC website. The WWC website only displays findings for studies that meet WWC design standards, for whatever version of the standards was used for the study review.

If I weren't interested in studies that would only qualify as Tier 3 evidence, I can narrow my search by selecting specific tiers under the evidence rating filter.

The screenshot shows the WWC website interface. At the top, there are navigation links and a search bar. Below that, there are several dropdown menus for filtering results: 'All Ratings', 'All Designs (for studies meeting standards)', 'Literacy', and 'Evidence Rating (1 option selected)'. A checkbox option is visible: 'Select studies with at least one statistically significant positive finding'. A search bar contains the text 'Search WWC Reviewed Studies' and a 'Clear Selections' button. A red circle highlights the text '44 results' under the heading 'Displaying 1 - 10 of 44 results'. A red oval highlights the first search result, which is a study by Borman, G. D., Dowling, N. M., & Schneck, C. (2008). The study title is 'A multisite cluster randomized field trial of Open Court Reading. Educational Evaluation and Policy Analysis, 30(4), 389-407.' The abstract text below the title describes the study's findings. An arrow points to the 'Evidence Rating' dropdown menu with the text 'Tier 1 evidence'. At the bottom of the page, there is a footer with the IES logo and the text 'Institute of Education Sciences' and the page number '13'.

Suppose I am only interested in Tier 1 evidence on literacy interventions. In this case, I can narrow my search by selecting “Tier 1” under the evidence ratings filter. In this example, the number of literacy studies identified as sources of Tier 1 evidence equals 44. As I’ve already told you, if you try to replicate this search yourself, you will obtain a larger number of studies, because the WWC continues to add studies to the online database since the time I created this screen shot.

You will see that the Review of Individual Studies page displays the abstracts for studies in the WWC database, if those studies are also available in ERIC. Suppose I read the abstracts and decide I’m interested in the results of a 2008 study by Borman, Dowling, and Schneck, “A multisite cluster randomized field trial of Open Court Reading.” In that case, I can click on the study to go to the corresponding study page.

Study: 82904

ies.ed.gov/ncee/wwc/Study/82904

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WWC REVIEW OF THIS STUDY Export Print

A multisite cluster randomized field trial of Open Court Reading.
Borman, C. D., Dowling, N. M., & Schneck, C. (2008). Educational Evaluation and Policy Analysis, 30(4), 389-407. Retrieved from: <https://eric.ed.gov/?id=E2951752>

RANDOMIZED CONTROLLED TRIAL EXAMINING 917 STUDENTS, GRADES 1-5

Select a WWC Review Open Court Reading® Intervention Report - Beginning Reading, 10/2014

Review Details Findings Sample Characteristics Study Details

Reviewed: October 2014

For: Open Court Reading® Intervention Report - Beginning Reading

Using: Beginning Reading Review Protocol 2.1 Review Standards 3.0

Rating: Meets WWC standards without reservations

MEETS WWC STANDARDS WITHOUT RESERVATIONS

AT LEAST ONE STATISTICALLY SIGNIFICANT POSITIVE FINDING

TIER 1 STRONG

AT LEAST ONE FINDING SHOWS STRONG EVIDENCE OF EFFECTIVENESS

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Notice the Tier 1 / Strong Evidence tier tag on the study review page

For this particular study, the WWC conducted several different reviews of the study using different study review protocols. I can see each of these reviews using the drop down menu entitled “Select a WWC Review.”

Suppose the review of the study that interests me most is the 2014 review for a Beginning Reading intervention report. That review has a tag on the right saying “Tier 1 Strong: At Least One Finding Shows Strong Evidence of Effectiveness.” Another tag notes that the study is rated “Meets WWC Standards without Reservations,” and a tag in the middle says that the study includes at least one statistically significant and positive finding.

From the review details I can also see that the study was reviewed using version 3.0 of the WWC standards and includes 917 students in grades 1-5.

Study: 82904

ies.ed.gov/ncee/wwc/Study/82904

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A multisite cluster randomized field trial of Open Court Reading.
Borman, G. D., Dowling, N. M., & Schneck, C. (2008). Educational Evaluation and Policy Analysis, 30(4), 389–407. Retrieved from: <https://eric.ed.gov/?id=EJ951752>

RANDOMIZED CONTROLLED TRIAL EXAMINING 917 STUDENTS, GRADES 1-5

Select a WWC Review Open Court Reading® Intervention Report - Beginning Reading, 10/2014

Review Details Findings Sample Characteristics Study Details

Comprehension outcomes—Statistically significant positive effects found

Outcome measure	Comparison	Period	Sample	Intervention mean	Comparison mean	Significant?	Improvement index	Evidence tier
Comprehensive Test of Basic Skills, 5th Edition (CTBS/5): Reading Composite Score	Open Court Reading® vs. business as usual	October - May	Grades 1-3; 679 students	603.07	590.98	Yes	10	TIER 1 STRONG

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Notice the Tier 1 Strong Evidence tier tag on the study findings tab

If I click on the findings tab, I can see that a finding from the study also has an Tier 1 Strong tag next to it. This finding is for a sample of 679 students in Grade 1-3 and measures reading achievement based on the Comprehensive Test of Basic Skills reading composite score. The impact is statistically significant and the improvement index is positive 10, indicating that an average or 50th percentile comparison group student would be expected to score at the 60th percentile if that student received the intervention.

Study: 82904

ies.ed.gov/ncee/wwc/Study/82904

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A multisite cluster randomized field trial of Open Court Reading.
Borman, C. D., Dowling, N. M., & Schneck, C. (2008). Educational Evaluation and Policy Analysis, 30(4), 389-407. Retrieved from: <https://eric.ed.gov/?id=E3951752>

RANDOMIZED CONTROLLED TRIAL EXAMINING 917 STUDENTS, GRADES 1-5

Select a WWC Review Open Court Reading® Intervention Report - Beginning Reading, 10/2014

Review Details Findings Sample Characteristics Study Details

Characteristics of study sample as reported by study author.

12% English language learners 67% Free or reduced price lunch Not specified Race 67%

Rural, Suburban, Urban

Florida, Georgia, Idaho, Indiana, North Carolina, Texas

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Type here to search

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Clicking on the “Sample Characteristics” tab allows me to see if the sample of students in the study overlaps with the population and settings of interest to me. The information her shows that 12 percent of the students in the study were English Learners, 67 percent were determined to be eligible for free or reduced price lunches, and their schools were located in rural, suburban, and urban districts across six states.

Evidence from WWC Intervention Reports

A WWC *intervention report* is a publication that presents a systematic review of evidence for a specific education policy, program, product, or practice.

The WWC only reports findings from studies eligible for review under the corresponding topic area protocol and that meet WWC standards.

The WWC assigns an *effectiveness rating*—such as *potentially positive effects*—to describe the intervention’s estimated impact on outcomes in each domain.

The intervention report also describes the *extent of evidence* on which the effectiveness ratings are based.

The preceding example was an individual study review, but it happened to be conducted as part of a review of evidence for an intervention report. A WWC intervention report is a publication that presents a systematic review of evidence for a specific education policy, program, product, or practice.

The WWC only reports findings from studies eligible for review under the corresponding topic area protocol and that meet WWC standards.

The WWC assigns an effectiveness rating—such as potentially positive effects—to describe the intervention’s estimated impact on outcomes in each domain.

The intervention report also describes the extent of evidence on which the effectiveness ratings are based.

EDGAR Definitions of WWC Intervention Reports Providing Tier 1, Tier 2, or Tier 3 Evidence

Intervention Report Criterion	Tier 1 Strong Evidence	Tier 2 Moderate Evidence	Tier 3 Promising Evidence
WWC <i>Procedures and Standards Handbook</i> version	Version 2.1 or higher	Version 2.1 or higher	Any version
Effectiveness rating for relevant outcome domain	Positive effects, with no rating of negative effects or potentially negative effects	Positive effects or potentially positive effects, with no rating of negative effects or potentially negative effects	Positive effects or potentially positive effects, with no rating of negative effects or potentially negative effects
Extent of evidence	Medium to large, from 2+ studies including 350+ individuals	Medium to large, from 2+ studies including 350+ individuals	Not specified
Overlap with proposed project's	Populations <u>and</u> settings	Populations <u>or</u> settings	Not specified

While the ESSA statute doesn't mention WWC intervention reports, the EDGAR definitions of evidence explain how applicants for ED discretionary grants can cite WWC intervention reports directly as Tier 1, Tier 2, or Tier 3 evidence.

WWC intervention reports cited as Tier 1 or Tier 2 evidence need to have been prepared under version 2.1 or higher of the WWC Procedures and Standards Handbook. To be cited as Tier 1 evidence, the intervention report needs to include an effectiveness rating of "positive effects" in at least one relevant outcome domain. To be cited as Tier 2 or Tier 3 evidence, the intervention report needs to include an effectiveness rating of "positive effects" or "potentially positive effects" in at least one relevant outcome domain. In no case can there also be an effectiveness rating of "negative effects" or "potentially negative effects" in a relevant outcome domain.

Tier 1 or Tier 2 evidence from an intervention report needs to be based on a "Medium to Large" extent of evidence consisting of 2 or more studies and 350 or more individuals across all studies included in the review. An intervention report based on a "Small" extent of evidence can provide Tier 3 evidence.

The overlap conditions for intervention reports are the same as for individual studies: overlap of both populations and settings is required for Tier 1 evidence; overlap of either populations or settings is required for Tier 2 evidence; and overlap of neither populations nor settings is required for Tier 3 evidence.

Use the Find What Works tool to search for WWC intervention reports

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Select topics to **Find What Works** based on the evidence

Literacy Mathematics Science Behavior

Children and Youth with Disabilities English Learners Teacher Excellence Charter Schools

Early Childhood (Pre-K) K-12 Kindergarten to 12th Grade Path to Graduation Postsecondary

Practice Guides: evidence-based recommendations for educators to improve student outcomes.

Intervention Reports: summaries of findings of the highest-quality research on a given intervention or practice in education.

Reviews of Individual Studies: summaries of individual studies that have been reviewed by the WWC.

Data From Study Reviews: downloadable data from WWC study reviews.

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To search for and filter intervention reports on the WWC website, go to whatworks.ed.gov, and look at the topics listed on the Find What Works chalkboard.

In the example displayed here, I am looking for intervention reports focused on behavioral interventions for children and youth with disabilities.

Results: Behavior, Children-Youth

ies.ed.gov/ncee/wwc/FWW/Results?filters=,Behavior,Children-Youth-with-Disabilities

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Find What Works based on the evidence

Filter by topic

- Literacy
- Mathematics
- Science
- Behavior
- Children and Youth with Disabilities
- English Learners
- Teacher Excellence
- Charter Schools
- Early Childhood

14 Results filtered by:

Behavior Children and Youth with Disabilities

Evidence of effectiveness	Intervention	Grades examined	Compare
	First Step to Success	K-3	<input type="checkbox"/>
	Coping Power	4-5	<input type="checkbox"/>
	Social Skills Training	PK	<input type="checkbox"/>
	Fast Track: Elementary School	K	<input type="checkbox"/>
	Early Risers	K-2	<input type="checkbox"/>
	Functional Behavioral Assessment-based Interventions	K-12	<input type="checkbox"/>
	The Incredible Years	PK-2	<input type="checkbox"/>

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The Find What Works tool allows users to filter intervention reports by multiple topics as well as by other criteria such as student grade level.

In this example, I am interested in behavioral interventions for children and youth with disabilities, so I check the boxes next to both topics. My search yielded 14 results, of which 8 interventions were indicated as having positive or potentially positive effects in at least some outcome domains.

The intervention report I will focus on for this example is called “Functional Behavioral Assessment-based Interventions.”

Consider the effectiveness rating, number of studies, and total number of students included in the relevant outcome domain

Functional Behavioral Assessment-based Interventions

Functional behavioral assessment (FBA) is an individualized problem-solving process for addressing student problem behavior. An assessment is conducted to identify the purpose or function of a student's problem behavior. This assessment process involves collecting information about the environmental conditions that precede the problem behavior and the subsequent rewards that reinforce the behavior. The information that is gathered is then used to identify and implement individualized interventions aimed at reducing problem behaviors and increasing positive behaviors. Accordingly, the studies evaluating FBA examine different FBA-based interventions identified for each student. FBA-based interventions can be used to address diverse problem behaviors, such as disruptive and off-task behaviors, noncompliance, and inappropriate social interactions.

Reviewed Research

Children Identified With Or At Risk For An Emotional Disturbance
December 2016

EVIDENCE SNAPSHOT INTERVENTION REPORT (977 KB) REVIEW PROTOCOL

Outcome domain	Effectiveness rating	Studies meeting standards	Grades examined	Students	Improvement index
Problem behavior	0.0	8 studies meet standards	K-12	21	--
School engagement	0.0	15 studies meet standards	K-12	32	--

Tier 3 / Promising Evidence

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The intervention page for Functional Behavioral Assessment-based interventions includes a description of the intervention, a PDF of the intervention report, as well as the studies of the intervention reviewed by the WWC that meet WWC standards. In this example, there are 8 such studies for the problem behavior outcome domain and 15 studies for the school engagement outcome domain. However, because these studies were single-case design studies, the total sample size across the studies is 21 students for problem behavior and 32 students for school engagement. As a result, the intervention report does not satisfy the large sample condition specified under EDGAR for Tier 2 evidence, although it can qualify as Tier 3 evidence because it includes an effectiveness rating of “potentially positive effects” in addressing problem behavior and school engagement.

Evidence from WWC Practice Guides

A WWC *practice guide* is a publication that presents recommendations for educators to address challenges in their classrooms or schools.

The recommendations in each guide are developed by a panel of nationally recognized experts including both researchers and practitioners, whose work is informed by a systematic review of relevant impact studies by the WWC.

The practice guide also provides educators with descriptions of *action steps* and potential *roadblocks* to implement each of the panel's recommendation.

The WWC assigns one of three levels— *strong*, *moderate*, or *minimal*—to describe the evidence base for each recommendation. These levels aren't always identical to the evidence tiers defined under ESSA and EDGAR.

I will now turn to another kind of WWC publication, which is a practice guide. A WWC practice guide presents recommendations for educators to address challenges in their classrooms or schools.

The recommendations in each guide are developed by a panel of nationally recognized experts including both researchers and practitioners, whose work is informed by a systematic review of relevant impact studies by the WWC. This systematic review is governed by a study review protocol developed specifically for the purpose of the guide.

The practice guide also provides educators with descriptions of action steps and potential roadblocks to implement each of the panel's recommendations.

The WWC assigns one of three levels— strong, moderate, or minimal—to describe the evidence base for each recommendation. These levels aren't always identical to the evidence tiers defined under ESSA and EDGAR.

EDGAR Definitions of WWC Practice Guides Providing Tier 1, Tier 2, or Tier 3 Evidence

Practice Guide Criterion	Tier 1 Strong Evidence	Tier 2 Moderate Evidence	Tier 3 Promising Evidence
WWC <i>Procedures and Standards Handbook</i> version	Version 2.1 or higher (released in 2011 or later)	Version 2.1 or higher (released in 2011 or later)	Any version
Practice guide's characterization of the evidence base for relevant practice recommendation	"Strong Evidence"	"Strong Evidence" or "Moderate Evidence"	"Strong Evidence" or "Moderate Evidence"
Overlap with proposed project's	Populations <u>and</u> settings	Populations <u>or</u> settings	Not specified

NOTE: When a practice guide characterizes the evidence base for a recommendation as "Minimal Evidence", this may qualify as Tier 4 *evidence that demonstrates a rationale*, since the practice guide panel of researchers and practitioners recommends the practice as having the potential to improve student outcomes or other relevant education outcomes

While the ESSA statute doesn't mention WWC practice guides, the EDGAR definitions of evidence explain how applicants for ED discretionary grants can cite WWC practice guide recommendations directly as Tier 1, Tier 2, or Tier 3 evidence.

WWC practice guides cited as Tier 1 or Tier 2 evidence need to have been prepared under version 2.1 or higher of the WWC Procedures and Standards Handbook. To be cited as Tier 1 evidence, the practice guide recommendation needs to be characterized in the guide as having a "strong" evidence base. To be cited as Tier 2 or Tier 3 evidence, the practice guide recommendation needs to be characterized as having either a "strong" or a "moderate" evidence base. Note that the strength of the evidence base doesn't correspond directly with the evidence tier label under EDGAR—it only does so for WWC practice guides released in 2011 or later.

When a practice guide characterizes the evidence base for a recommendation as "minimal evidence", this may qualify as Tier 4 evidence that demonstrates a rationale, since the practice guide panel of researchers recommends the practice as having the potential to improve student outcomes or other relevant education outcomes.

The overlap conditions for practice guides are the same as for individual studies and intervention reports: overlap of both populations and settings is required for Tier 1 evidence; overlap of either populations or settings is required for Tier 2 evidence; and overlap of neither populations nor settings is required for Tier 3 evidence.

Find the quick link to the Practice Guides page on the WWC website

IES WWC What Works Clearinghouse

Select topics to **Find What Works** based on the evidence

- Literacy
- Mathematics
- Science
- Behavior
- Children and Youth with Disabilities
- English Learners
- Teacher Excellence
- Charter Schools
- Early Childhood (Pre-K)
- K-12 Kindergarten to 12th Grade
- Path to Graduation
- Postsecondary

Practice Guides: evidence-based recommendations for educators to improve student outcomes.

Intervention Reports: summaries of findings of the highest-quality research on a given intervention or practice in education.

Reviews of Individual Studies: summaries of individual studies that have been reviewed by the WWC.

Data From Study Reviews: downloadable data from WWC study reviews.

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To search for practice guides on the WWC website, go to whatworks.ed.gov, and look for the Quick Links listed at the bottom of the landing page. Click on the link labelled “Practice Guides.”

Two infographics describe evidence levels in 8 practice guides in elementary and secondary education

Check out our infographic on how teachers can use WWC Practice Guides to inform classroom practices. Check out our infographics on levels of evidence in **Elementary** and **Secondary** Practice Guides. All of the WWC Practice Guides are listed below in chronological order, by date of release.

Practice Guide Title	Release Date
Effective Advising for Postsecondary Students	Released: October 2021
Designing and Delivering Career Pathways at Community Colleges	Released: March 2021
Assisting Students Struggling with Mathematics: Intervention in the Elementary Grades	Released: March 2021
Using Technology to Support Postsecondary Student Learning	Released: May 2019
Preventing Dropout in Secondary Schools	Released: September 2017
Strategies for Postsecondary Students in Developmental Education - A Practice Guide for College and University Administrators, Advisors, and Faculty	Released: November 2016

On the practice guide landing page, you will see all of the practice guides available from the WWC. As of February 2022, there were 27 practice guides listed on this page, and additional practice guides are under development for release in 2021.

In March 2020, the WWC released two infographics with information on practice guides with recommendations for educators in elementary schools or secondary schools. These infographics highlight practice recommendations included in 8 practice guides that qualify as Tier 1 or Tier 2 evidence under EDGAR.

Note that the WWC released 3 additional practice guides in 2021, one focused on mathematics intervention in the elementary grades, and two focused on postsecondary education.

Note the evidence base corresponding with each practice guide recommendation (1st example)

Designing and Delivering Career Pathways at Community Colleges

Released: March 2021
PDF (2.3 MB)

Recommendations Details Panel

This practice guide provides community colleges with five specific recommendations for supporting occupational skills training through career pathways.

- 1 Intentionally design and structure career pathways to enable students to further their education, secure a job, and advance in employment.
- Show More
TIER 2 MODERATE EVIDENCE
- 2 Deliver contextualized or integrated basic skills instruction to accelerate students' entry into and successful completion of career pathways.
- Show More
TIER 2 MODERATE EVIDENCE
- 3 Offer flexible instructional delivery schedules and models to improve credit accumulation and completion of non-degree credentials along career pathways.
- Show More
TIER 4 HAS RATIONALE
- 4 Provide coordinated comprehensive student supports to improve credit accumulation and completion of non-degree credentials along career pathways.
- Show More
TIER 2 MODERATE EVIDENCE
- 5 Develop and continuously leverage partnerships to prepare students and advance their labor market success.
- Show More
TIER 2 MODERATE EVIDENCE

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Here is the landing page for the practice guide on “Developing and Delivering Career Pathways at Community Colleges.” This guide includes 5 practice recommendations, four of which qualify as Tier 2 Moderate Evidence, and one as Tier 4 evidence that demonstrates a rationale. In addition to the PDF of the full practice guide, the page includes a one-page introduction to the practice guide, a 16-page summary of the guide’s recommendations, and a link to webinars about the guide and its recommendations.

Note the evidence base corresponding with each practice guide recommendation (2nd example)

IES : WWC
Assisting Students Struggling with Mathematics:
Intervention in the Elementary Grades

Released: March 2021
PDF (1.9 MB)

Recommendations Details Panel

This practice guide provides evidence-based practices that can help teachers tailor their instructional approaches and/or their mathematics intervention programs to meet the needs of their students.

- 1 Systematic Instruction: Provide systematic instruction during intervention to develop student understanding of mathematical ideas. **TIER 1 STRONG EVIDENCE**
- 2 Mathematical Language: Teach clear and concise mathematical language and support students' use of the language to help students effectively communicate their understanding of mathematical concepts. **TIER 1 STRONG EVIDENCE**
- 3 Representations: Use a well-chosen set of concrete and semi-concrete representations to support students' learning of mathematical concepts and procedures. **TIER 1 STRONG EVIDENCE**
- 4 Number Lines: Use the number line to facilitate the learning of mathematical concepts and procedures, build understanding of grade-level material, and prepare students for advanced mathematics. **TIER 1 STRONG EVIDENCE**
- 5 Word Problems: Provide deliberate instruction on word problems to deepen students' mathematical understanding and support their capacity to apply mathematical ideas. **TIER 1 STRONG EVIDENCE**
- 6 Timed Activities: Regularly include timed activities as one way to build fluency in mathematics. **TIER 1 STRONG EVIDENCE**

Tier 1 evidence

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The second example is of the landing page for the practice guide on “Assisting Students Struggling with Mathematics: Intervention in the Elementary Grades.” This guide includes 6 practice recommendations, all of which qualify as Tier 1 / Strong Evidence. This guide also includes a link to a webinar on the guide and videos summarizing its specific recommendations.

Additional Evidence Resources from the WWC

I now would like to describe some additional resources available on the WWC website that relate to evidence.

Find the quick link to the Resources for Educators page on the WWC website

WWC | Find What Works! x +

ies.ed.gov/ncee/wwc/FWW

Apps Department of Education Links connectED Home webTA Login IPP - Single Sign-On FedTalent ED Dashb... USA Performance® Other bookmarks Reading list

IES WWC What Works Clearinghouse MENU Search Go

What's New at the WWC

JAN 20 [WWC Reviews the Research on Social Belonging](#)
Social Belonging interventions for college students aim to reduce the impact of negative stereotypes that may burden students in underrepresented groups and affect their persistence in college. Social Belonging had mixed effects on academic achievement and progressing in college and no discernible effects on college >> [More info](#)

JAN 20 [WWC Reviews the Research on Growth Mindset](#)
Growth Mindset interventions encourage students to view intelligence as a malleable characteristic that grows with effort. The WWC found that Growth Mindset interventions have potentially positive effects on academic achievement and no discernible effects on progressing in college or college enrollment >> [More info](#)

JAN 04 [Now Available: Online Regression Discontinuity Design Training](#)
The What Works Clearinghouse Regression Discontinuity Design training is now available online. This free training allows researchers and potential reviewers to become certified reviewers by viewing video modules and taking a certification exam at their

How the WWC Reviews Studies

[Handbooks and Reviewer Resources](#)
[Online Training](#)
[WWC Help Desk](#)

Resources for Educators

Visit our [resources for educators](#) page to access videos, webinars, and other helpful materials with guidance on evidence-based practices.

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Type here to search

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To search for resources for educators on the WWC website, go to whatworks.ed.gov, and look for the towards the bottom of the landing page labelled “Resources for Educators.”

Note resources on evidence tiers and WWC ratings, and resources for study authors

Resources

WWC Study Ratings
February 22, 2021
This video explains the ratings that studies reviewed by the What Works Clearinghouse (WWC) can receive.

How States Can Use the WWC to Inform Evidence Use under ESSA
May 8, 2020
This What Works Clearinghouse (WWC) video describes how the Oklahoma State Department of Education and the Mississippi Department of Education use the WWC to inform supports for evidence use.

Using WWC Resources to Identify Interventions that Meet the ESSA Tiers of Evidence
March 6, 2020
The What Works Clearinghouse (WWC) hosted a webinar on March 6, 2020 on the alignment between Every Student Succeeds Act (ESSA) tiers of evidence and the WWC evidence standards.
Webinar Slides
Webinar Q&A

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Resources are grouped under six headings:

- About the WWC and Our Website
- Evidence Tiers and WWC Ratings
- Resources for Educators, including resources connected to specific practice guides
- Resources for Study Authors
- Resources for WWC Reviewers, and
- Archived Resources

Resources on evidence tiers and WWC ratings may be of particular interest to users seeking to find evidence to inform the design of their education projects.

Resources for educators include practice guide resources, including information on professional learning communities tied to certain guides.

Resources for study authors may be of particular interest to users seeking to plan studies to meet WWC standards.

Resources for WWC reviewers provide more details on how the WWC reviews individual studies.

Find the quick link to the Data from Study Reviews on the WWC website

IES WWC What Works Clearinghouse

Select topics to **Find What Works** based on the evidence

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- Mathematics
- Science
- Behavior
- Children and Youth with Disabilities
- English Learners
- Teacher Excellence
- Charter Schools
- Early Childhood (Pre-K)
- K-12 Kindergarten to 12th Grade
- Path to Graduation
- Postsecondary

Practice Guides: evidence-based recommendations for educators to improve student outcomes.

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Reviews of Individual Studies: summaries of individual studies that have been reviewed by the WWC.

Data From Study Reviews: downloadable data from WWC study reviews.

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Users of the WWC website may also download data from individual studies reviewed by the WWC. These data, which are presented in CSV format to import into a spreadsheet or other software, include study characteristics and WWC ratings of studies, intervention characteristics and WWC effectiveness ratings of interventions, and individual study findings meeting WWC standards. Person-level data from studies are NOT downloadable from the WWC website, only aggregate data.

To access the data from WWC reviews of studies, select “Data from Study Reviews” at the Quick Links on the WWC landing page, whatworks.ed.gov.

Extract Data

ies.ed.gov/ncee/wwc/StudyFindings

Department of Education Links connectED Home ... webTA Login IPP - Single Sign-On FedTalent ED Dashb... USA Performance® IES Members Site NCEE SharePoint WWC SharePoint WWC

IES WWC What Works Clearinghouse

DATA FROM STUDY REVIEWS

The review of individual studies underlies all What Works Clearinghouse (WWC) products, from reports on a single study to a systematic review of all studies on an intervention. The WWC provides the capability for users to extract data resulting from WWC reviews for every study that meets standards.

The WWC provides this extraction tool as part of our open data approach to increase transparency. The continually updated dataset provides:

- **Greater transparency** for WWC reviews, allowing users to replicate WWC findings and reports
- **Comprehensive information** to encourage research questions beyond those asked by the WWC
- **Detailed study findings** to allow for meta-analysis
- **Contextual information** for the examination of what works for whom and under what conditions
- **A pre-merged file** containing data from all findings, studies, and intervention reports, with new publicly available data, including
 - WWC ratings of individual findings
 - The Level 1 unit of analysis
 - An indicator of "multisite"
 - Topic areas
 - Posting date
 - ESSA evidence tiers

Use the filters below for the pre-merged file to download targeted data from intervention reports, studies, and findings. Users can filter by WWC study rating, topics, protocols, interventions, ESSA ratings, standards versions, and outcome domains. Users may also choose to download data from intervention reports, studies and findings in separate files; however, the filters are for use with the merged file. The merged file contains data from intervention reports, studies that Meet WWC Group Design, Single Case Design, and Regression Discontinuity Design Standards With and Without Reservations, as well as individual findings from these studies. This file does not include studies or finding from studies that Do Not Meet WWC Standards. Users wishing to download all studies in the WWC database, including those that Do Not Meet WWC Standards, should download the separate file. The merged file, as well as the separate file downloads, do not include findings that do not meet WWC standards.

Filters allow users to select study findings by topic, intervention, outcome of interest, and evidence tier

All Ratings ▾ All Topics ▾ All Protocols ▾
 All Interventions ▾ All Evidence Tier Ratings ▾ All Standards Versions ▾
 All Outcome Domains ▾

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- Downloadable data from individual study reviews may be filtered by
- Study rating
 - Topic area
 - Protocol used for the review
 - Name of the intervention
 - Evidence tier rating
 - WWC standards version, and
 - Outcome domains

Questions, comments, or suggestions?

Email the WWC Help Desk at Contact.WWC@ed.gov

Do you have questions or comments about this presentation?

Do you wish to offer suggestions to the WWC about our study reviews, intervention reports, practice guides, or website?

Email the WWC Help Desk at Contact.WWC@ed.gov

Thank you for your interest in using evidence to improve student outcomes and other outcomes relevant to education!