

MIDWEST Comprehensive Center

at American Institutes for Research

Identifying Evidence-Based Practices That Meet Requirements for Low-Performing Schools

Dave English, Senior Technical Assistance Consultant Sokoni Davis, PhD, Senior Technical Assistance Consultant Mara Schanfield, Project Lead, Midwest Comprehensive Center January 23, 2019

Technical Set Up

- 1. Instructions for **logging into the Adobe Connect platform** for the webinar:
- 2. Join via link: http://air.adobeconnect.com/rwnkfpksq5nx/
- 3. You will be prompted to join the audio conference. Select the "dial out" feature where the Adobe Connect platform will call your phone line. Do *not* select "Listen Only."
- 4. Please remember to keep your audio line muted when you are not speaking

Two-Part Series: Selecting Evidence-Based Practices for Low-Performing Schools

January 23, 1:00 p.m. Eastern Time

Webinar 1: Identifying Evidence-Based Practices That Meet Requirements for Low-Performing Schools

January 30, 1:00 p.m. Eastern Time

Webinar 2: Mastering Online Resources for Identifying Evidence Tiers and Evidence-Based Practices

Module 1: Objectives

- Share overview of the Every Student Succeeds Act (ESSA) evidence tiers.
- Discuss minimum requirements for meeting Tier 3 of evidence.
- Provide flags for identifying elements of research studies that meet Tier 3.
- Expose participants to resources for quickly identifying Tier 3 evidencebased practices (EBPs).



Evidence Tier Criteria for Evaluating a Study

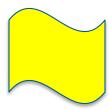
	Tier Criterion	Tier 1 (greatest rigor)	Tier 2	Tier 3	Tier 4 (least rigor)
1	Research design	Experimental study	Quasi-experimental	Correlational	Logic model
	(minimum rigor)	Random assignment of participants to control and treatment	Control and treatment groups not random (but purposeful)	Measures relationship between practice and outcome	Informed by high- quality research or positive evaluation
2	Group equivalence	Low attrition	Higher attrition ok but then must have baseline equivalence	Statistical controls for selection bias	n/a
3	Statistically significant favorable effect (by outcome)	~	~	~	Includes evaluation plan
4	No significant unfavorable effect from Tier 1 or Tier 2 study (by outcome)	~	✓	~	n/a
5	Large study sample	~	/	n/a	n/a
6	Multisite study sample	~	~	n/a	n/a
7	Sample overlap	Students and setting	Students or setting	n/a	n/a

Notes About Symbols Used

- Italics are used for criteria that determine evidence tiers.
- Circled numerals in the upper right corner of slides correspond to criteria 1–7.



 Flags indicate a *look-for* to determine whether criteria are met for minimum eligibility for Tier 3.



Minnesota Statewide System of Support: Formula for Success

What X How X Where = Success

Minnesota's statewide system of support uses a stage-based framework with schools that incorporates three core support elements.

The three core elements are

- 1. Building and using implementation teams to actively lead implementation efforts,
- 2. Using data and consistent, frequent feedback loops to drive decision-making and promote continuous improvement, and
- Developing an implementation infrastructure that includes innovation-specific capacity, general capacity, and enabling contexts for implementation and continuous improvement.

An effective implementation infrastructure is required for districts and schools to sustain meaningful change and improve outcomes for all students.

Specific Evidence-Based Practices



Effective Implementation Capacity



Enabling Context



Results

Creating the Capacity to Select and Implement Strategies, Innovations, and Programs in Classrooms

- Conducting Comprehensive Needs Assessment and Root Cause Analysis
- Selecting Evidence-Based Strategies
- · Operationalizing Strategies
- Identifying Fidelity and Impact Measures

Creating General Implementation Practices and Processes in Schools and Districts

- Establishing Linked Teams
- Developing Training and Coaching Supports, Structural Drivers, and Leadership
- Building Data Systems
- Installing Standards-Based Educational Systems

Creating the Conditions That Support Change and Continuous Improvement in Districts and Communities

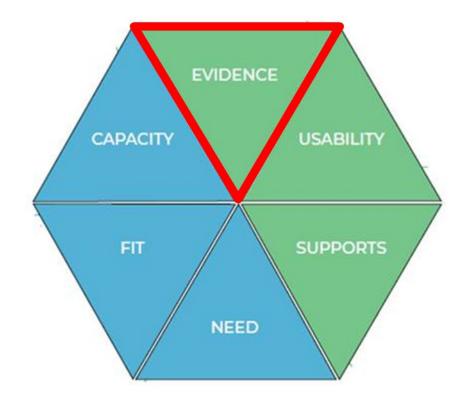
- Setting a Vision of Excellence
- Valuing Equity and Addressing Inequities
- Managing School Climate and Student Conduct
- Involving Families and Community

- Improved outcomes for all students
- The elimination of achievement gaps between groups of students
- Increased capacity of districts and schools to implement sustained continuous improvement processes
- Increased educator effectiveness
- Improved conditions for teaching and learning

So that schools can meet the needs of each student and so that each student benefits from a high-quality school.

Many Decisions Factor Into Selecting Improvement Activities for Low-Performing Schools

Level of evidence is just one of them.



Source: Metz & Louison, 2018

ESSA Evidence Provisions

ESSA Program	Evidence Requirement(s)
Title I, Section 1003: School Improvement	Minimum of 1 intervention must meet Tiers 1, 2, or 3 in CSI and TSI schools
Title I, Part A: Schoolwide/ Targeted Assistance	External providers must have expertise in using EBPs (Tiers 1, 2, 3, 4)
Title II, Part A: Effective Instruction	Some requirements for Tiers 1, 2, 3, or 4, where evidence is reasonably available (e.g., professional development, induction, and mentoring)
Title IV, Part A: Student Support Grant	Some requirements for Tiers 1, 2, 3, or 4, where evidence is reasonably available
Title IV, Part B: 21st CCLCs	Use Tiers 1, 2, 3, or 4 evidence, when deemed appropriate
Title IV, Part D: Magnet School Assistance	Competitive preference is given for proposals with evidence-based activities (Tiers 1, 2, 3, or 4)
Title IV, Part F: Education Innovation	Includes program-specific evidence requirements
Title IV, Part F: National Community Support	 Promise Neighborhoods: Some requirements and competitive preference for Tiers 1, 2, 3, or 4 Full-Service Community Schools: Competitive preference for Tiers 1 to 4

Source: Every Student Succeeds Act (ESSA)

ESSA: At Least One Practice in CSI and TSI Schools Must Meet Evidence Tiers 1, 2, or 3

WHAT IS AN "EVIDENCE-BASED" INTERVENTION? (from section 8101(21)(A) of the <u>ESEA</u>)

"...the term 'evidence-based,' when used with respect to a State, local educational agency, or school activity, means an activity, strategy, or intervention that -

- demonstrates a statistically significant effect on improving student outcomes or other relevant outcomes based on –
 - strong evidence from at least one well-designed and well-implemented experimental study;
 - (II) moderate evidence from at least one well-designed and well-implemented quasiexperimental study; or
 - (III) promising evidence from at least one well-designed and well-implemented correlational study with statistical controls for selection bias; or
- (ii) (I) demonstrates a rationale based on high-quality research findings or positive evaluation that such activity, strategy, or intervention is likely to improve student outcomes or other relevant outcomes; and
 - (II) includes ongoing efforts to examine the effects of such activity, strategy, or intervention.

Tiers 1–3

Source: ESSA

Sources of Evidence-Based Practices

Per ESSA, districts and schools must find evidence (e.g., in a research study or research synthesis) that addresses the same intervention and outcome(s) that you propose and that meets the Tier 1, 2, or 3 criteria, from:

- online clearinghouses that compile and evaluate research studies,
- research studies not evaluated in clearinghouses, or
- single study reviews commissioned through the Institute of Education Sciences (IES).

The intervention may be a **current practice** (if a study is found for it that meets Tiers 1–3) or may be a **practice that is new** to your school/district.

ESSA Tiers of Evidence

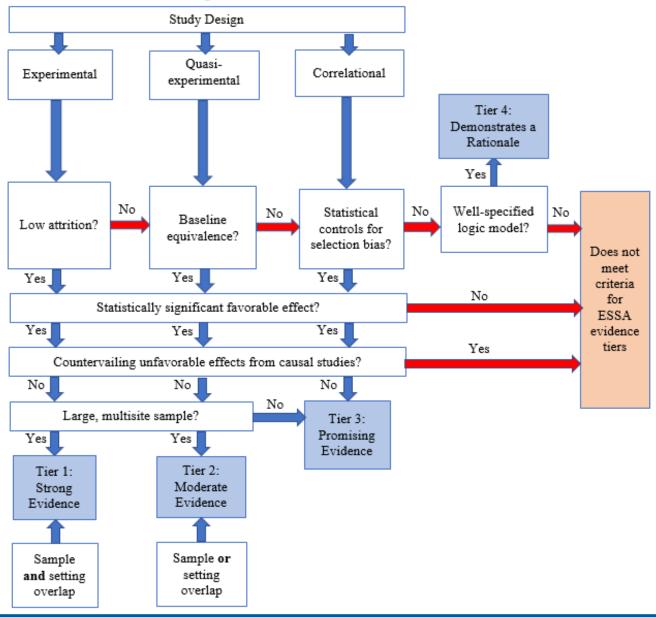
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Determining Evidence Tier



Criteria 1 and 2

- Research design
- Group equivalence

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Minimum eligibility for Tier 3 is to quantitatively measure relationship between practice and outcome.

Tier Criterion	Tier 1 (greatest rigor)	Tier 2	Tier 3
Research design (minimum rigor)	Experimental study	Quasi-experimental study	Correlational study
	Measures relationship between practice and outcome (causal)	 Measures relationship between practice and outcome (causal) 	 Measures relationship between practice and outcome
	 Assignment of participants to control and treatment groups Random assignment of participants 	 Assignment of participants to control and treatment groups 	



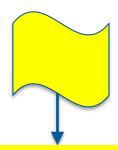
Examples of relationships between practice and outcome:

Outcome Practice Drop-out prevention Graduation rate program Instructional Achievement scores adjustments Mentoring program Chronic absence rate

Quantitative relationship



Analysis (regression) results predicting enrollment in a Minnesota college in fall 2011 (Davis, Smither, Zhu, Stephan, 2017)



Look for results tables with practices (inputs) on one dimension and outcomes (output) on the other dimension.

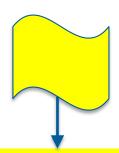
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Student characteristic			
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Black	1.25***	(1.15,1.36)	
Hispanic	0.79***	(0.71, 0.89)	
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High school characteristic			
Rural high school	1.31***	(1.19, 1.45)	
Enrollment between 579 and 1,599 students	1.85***	(1.66, 2.05)	
Enrollment 1,600 students or larger	1.95***	(1.73, 2.19)	

^{**} Significant at p < .01; *** significant at p < .001.



Outcome

Research Design



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Practices

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Source: Analysis (regression) results predicting enrollment in a Minnesota college in fall 2011 (Davis et al., 2017)



Be cautious of:

- undocumented results ("My experience has been..."),
- typical program evaluation results (not rigorously designed),
- qualitative research (not quantitative practice-tooutcome results), and
- unpublished research or research not published in peer-reviewed publications.

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Group Equivalence:Controls



For minimum eligibility, research most have *controls* that help ensure the results are accurate, <u>regardless</u> of factors such as the following:

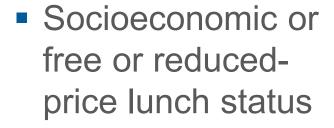


Race



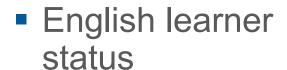


Age



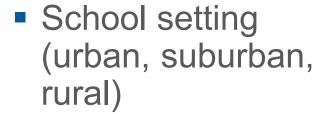








Migrant status

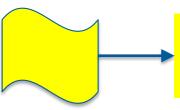


School size









Find discussion of controls, or covariates, in the methodology, literature review, and other sections of the study.

The study team calculated descriptive statistics and developed and analyzed hierarchical logistic regression models. The models **controlled** for student and high school characteristics. For a more detailed account of data collection and the methods used to answer the research questions, and analytic samples, see appendix B.

[We] **controlled** for a host of...differences, including differences in the characteristics of the populations served, differences in per-pupil expenditures and instructional resources, and differences in the composition of school staff.

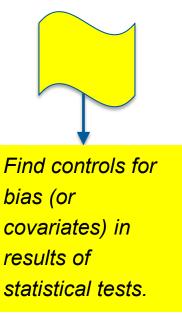
Finn and Achilles, 1999

Our basic approach is to use the panel of schools to **control** for observed and unobserved student, family, school, and community factors that could potentially bias the estimated classsize and teacher-characteristic effects, leaving only exogenous variation to identify the parameter estimates.

Davis, Smither, Zhu, and Stephan, 2017

Jepsen and Rivkin, 2009



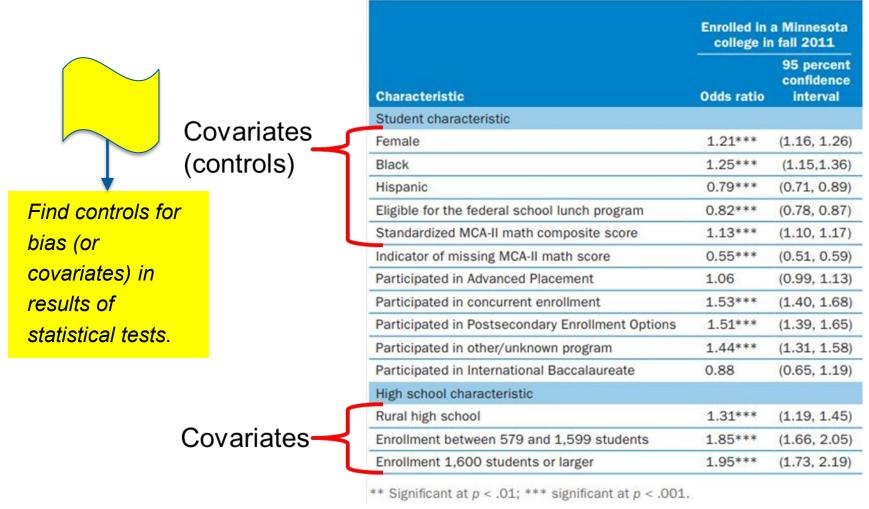


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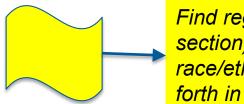
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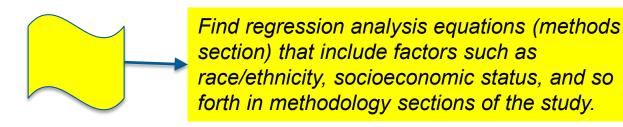




Find regression analysis equations (methods section) that include factors such as race/ethnicity, socioeconomic status, and so forth in methodology sections of the study.

Attendance rate = β 0 + β 1 historically disadvantaged? + β 2 income + β 3 receive SEL + u







Criteria 3 and 4

- Statistically significant, favorable effect
- No unfavorable effects from other Tier 1 or Tier 2 studies

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Statistically significant favorable effect means a 95% (or higher) likelihood that the relationship between a practice and an outcome is not random.

"Not random" could mean:

- Predictive, but not causal (i.e., correlates)
- Causal

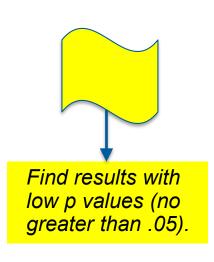


The statistical test for significance generates a p value as its result.

Poverty status

*P<.01. ***p<.001.

- p value = probability that the relationship between intervention and outcome is caused by random factors (i.e., something other than the intervention).
- p value of .05 or less is universally considered significant, indicating at least a 95% chance that the intervention-outcome relationship is not random.



	3 rd Grade ELA	3 rd Grade
	achievement	Reading
	acineveniene	diagnostic
		ulagilostic
With Reading 180		
English learner	.91*	.71**
Poverty status	.78	.90***
Original Curriculur	n	
English learner	.83*	.61**

.71

Table. Estimated Coefficients from Regressions

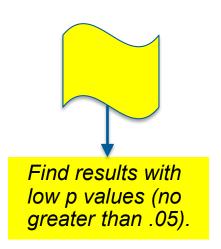
Predicting Grade 3 ELA Achievement and Reading

Asterisks denote p value of .05 (95% probability).

Magnitude of effect is not relevant, only should be positive.

.82***



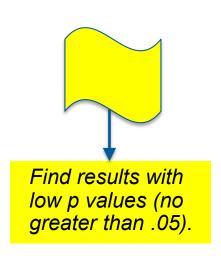


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No Statistically Significant, Unfavorable Effects from Tier 1 or Tier 2 Studies



- No other Tier 1 or Tier 2 studies for the intervention/outcome may have statistically significant, unfavorable effects on the outcome of interest.
- There are shortcuts for determining this in WWC.



Summary

For minimum eligibility of EBP for CSI and TSI schools to meet Tier 3 requirement, at least one practice must:

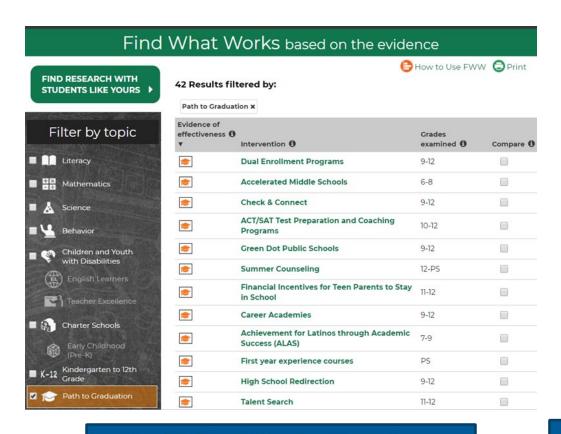
- measure a relationship between a **practice and outcome** of interest (i.e., at least correlational),
- include **statistical contro**ls that account for differences in participants (e.g., by race, socioeconomic status),
- demonstrate favorable **statistical significance** effects (95% likelihood) for relationship between practice and outcome, and
- not be overridden by statistically significant, unfavorable effects from Tier 1 or Tier 2 studies (see WWC shortcuts).

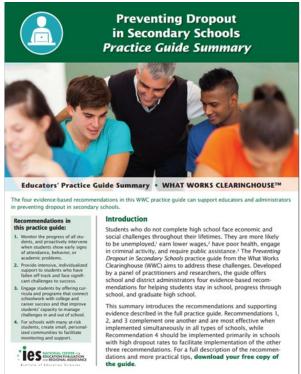
Finding Studies That Meet Tier 3



What Works Clearinghouse

Two resources have shortcuts for identifying studies that are at least Tier 3:





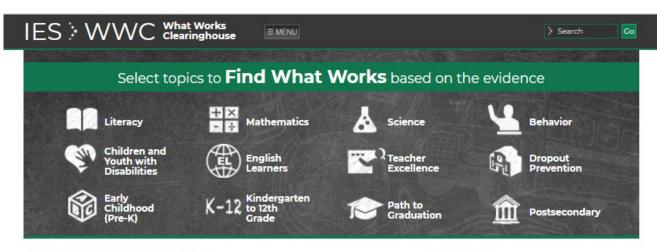
Find What Works Database

Educator Practice Guides

Find What Works

Any practice in Find What Works that has a statistically significant favorable effect for the outcome, without overriding results (criteria 3 and 4), qualifies for at least Tier 3.

Visit the WWC Website



WELCOME TO THE WHAT WORKS CLEARINGHOUSE

The What Works Clearinghouse (WWC) reviews the existing research on different programs, products, practices, and policies in education. Our goal is to provide educators with the information they need to make evidence-based decisions. We focus on the results from high-quality research to answer the question "What works in education?" Find more information about the WWC.

HIGHLIGHTS





Source: https://ies.ed.gov/ncee/wwc/

Select a Topic That Aligns With Your Outcome of Interest or Practice



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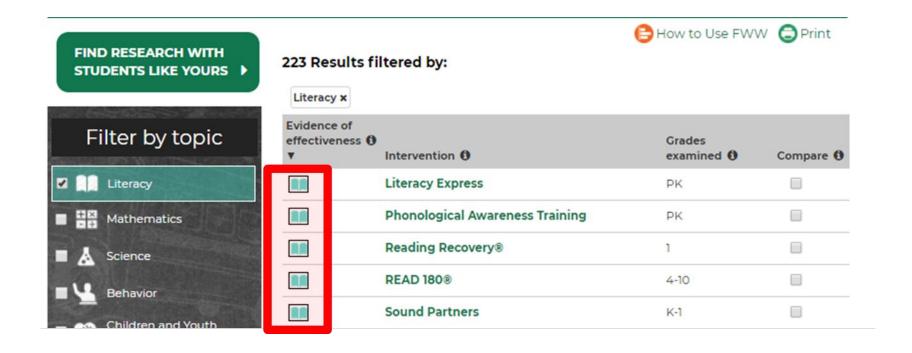
HIGHLIGHTS





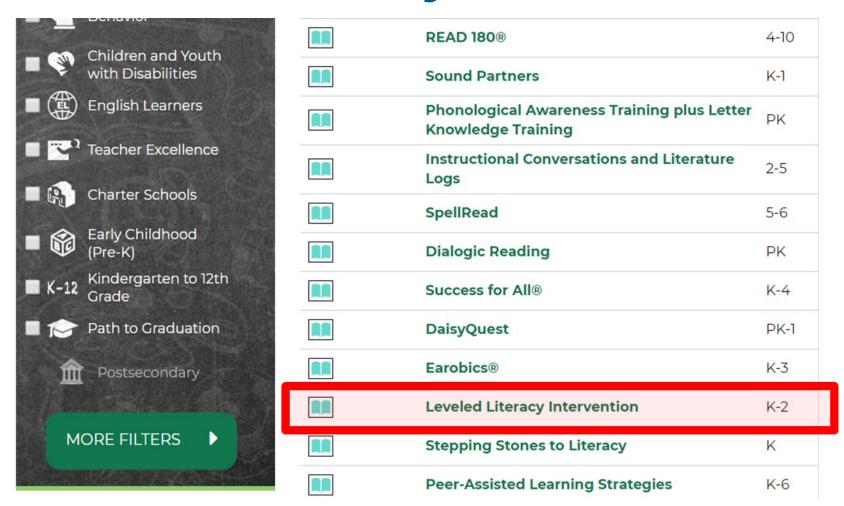
Source: https://ies.ed.gov/ncee/wwc/

Studies With Highest Significance Are Nearer to the Top of the Results



Source: https://ies.ed.gov/ncee/wwc/FWW/Results?filters=,Literacy

"Leveled Literacy Intervention"



Source: https://ies.ed.gov/ncee/wwc/Intervention/1287

Review the Effectiveness Rating by Outcome



Determine if:

- statistically significant favorable effect and
- no unfavorable effects from other experimental or quasi-experimental (Tier 1 or Tier 2) on the outcome.



Source: https://ies.ed.gov/ncee/wwc/Intervention/1287

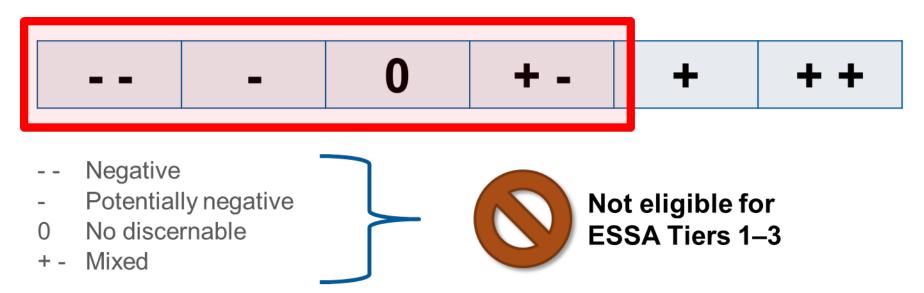
See Effectiveness Rating at Outcome Level



Determine if:

- statistically significant favorable effect and
- no significant unfavorable effect from other experimental or quasi-experimental study (Tier 1 or Tier 2).

Six possible effectiveness ratings:



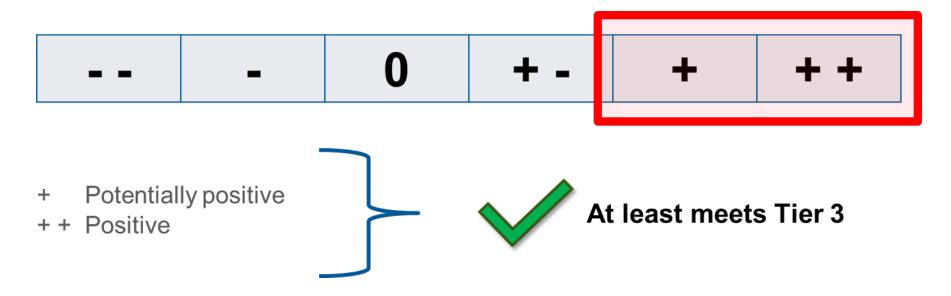
See Effectiveness Rating at Outcome Level



Determine if:

- statistically significant favorable effect and
- no significant unfavorable effect from other experimental or quasi-experimental study (Tier 1 or Tier 2).

Six possible effectiveness ratings:



Which of These Outcomes Meet Criteria 3 and 4 for Statistical Significance?

READ 180®

November 2016		© EVIDENCE SNAPSHOT INT	ERVENTION REPO	ORT (1.1 MB)	REVIEW PROTOCOL
Outcome domain 🗿	Effectiveness rating ①	Studies meeting standards ①	Grades examined ①	Students 1	Improvement index 🛈
Alphabetics	0-+++	2 studies meet standards	4-6	746	
Comprehension	0 +- ++	6 studies meet standards	4-9	3,882	-50 0 +50
Literacy achievement	0+++	6 studies meet standards	4-10	6,235	-50 0 +50
Reading fluency	0+++	2 studies meet standards	4-6	561	-50 0 +50

Source: https://ies.ed.gov/ncee/wwc/Intervention/1287

Which of These Outcomes Meet Criteria 3 and 4 for Statistical Significance?

Shared Book Reading

April 2015 © EVIDENCE SNAPSHOT DINTERVENTION REPORT (759 KB) REVIEW PROTOCOL

Outcome domain 1	Effectiveness rating ①	Studies meeting standards ①	Grades examined ①	Students 🔁	Improvement index 1
Alphabetics	0-+++	<u>3 studies meet standards</u>	PK	356	
Comprehension		5 studies meet standards	PK	259	
Language development		4 studies meet standards	PK	567	
Reading achievement	0-+++	1 study meets standards	PK	38	

Source: https://ies.ed.gov/ncee/wwc/Intervention/1287

Educator Practice Guides

- Any practice in Practice Guides that has a moderate or strong evidence rating qualifies for at least Tier 3.
- Evidence strength is not broken out by outcome.

WWC Practice Guides

ESSA Tier	Evidence Rating	Overlap	WWC Handbook Requirements
Strong (Tier 1)	Strong	Sample <u>and</u> setting	Version 2.1 or later (3.0 or 4.0)
Moderate (Tier 2)	Strong or Moderate	Sample <u>or</u> setting	Version 2.1 or later (3.0 or 4.0)
Promising (Tier 3)	Strong or Moderate	n/a	n/a

WWC Practice Guides





PRACTICE GUIDES

A practice guide is a publication that presents recommendations for educators to address challenges in their classrooms and schools. They are based on reviews of research, the experiences of practitioners, and the expert opinions of a panel of nationally recognized experts.

To search by Topic or Keyword, use the **Practice Guide Search**.

Instructional Tips for Teaching Elementary School Students to Be Effective Writers

Evidence-based tips based on recommendations from the WWC practice guide.







All of the WWC Practice Guides are listed below in chronological order, by date of release.



Improving Mathematical Problem Solving in Grades 4 Through 8



Preventing Dropout in Secondary Schools



Strategies for Postsecondary Students in Developmental Education— A Practice Guide for College and University Administrators, Advisors, and Faculty

Released: November 2016

Released: October 2018 *
Revised



Teaching Secondary Students to Write Effectively



Foundational Skills to Support Reading for Understanding in Kindergarten Through 3rd Grade

Released: September 2017



Teaching Strategies for Improving Algebra Knowledge in Middle and High School Students

Released: November 2016

Released: July 2016* Revised

Released: April 2015

Source: https://ies.ed.gov/ncee/wwc/PracticeGuides

WWC Practice Guide Evidence Ratings



PRACTICE GUIDE

Preventing Dropout in Secondary Schools



Recommendations

Details

Panel

Released: September 2017

PDF (4.4 MB)

This practice guide provides school educators and administrators with four evidence-based recommendations for reducing dropout rates in middle and high schools and improving high school graduation rates. Each recommendation provides specific, actionable strategies; examples of how to implement the recommended practices in schools; advice on how to overcome potential obstacles; and a description of the supporting evidence.

- Monitor the progress of all students, and proactively intervene when students show early signs of attendance, behavior, or academic problems.
- 2 Provide intensive, individualized support to students who have fallen off track and face significant challenges to success.
- 3 Engage students by offering curricula and programs that connect schoolwork with college and career success and that improve students' capacity to manage challenges in and out of school.
- **▼** Show More

4 For schools with many at-risk students, create small, personalized communities to facilitate monitoring and support.

▼ Show More

▼ Show More

▼ Show More

WWC Practice Guide Evidence Ratings



Preventing Dropout in Secondary Schools



Recommendations

Details

Panel

Released: September 201'

STRONG

EVIDENCE

月 PDF (4.4 MB)

This practice guide provides school educators and administrators with four evidence-based recommendations for reducing dropout rates in middle and high schools and improving high school graduation rates. Each recommendation provides specific, actionable strategies; examples of how to implement the recommended practices in schools; advice on how to overcome potential obstacles; and a description of the supporting evidence.

Monitor the progress of all students, and MINIMAL proactively intervene EVIDENCE when students show early signs of attendance, behavior, or academic problems.

▼ Show More

2 Provide intensive. individualized support MODERATE to students who have EVIDENCE fallen off track and face significant challenges to success.

▼ Show More

3 Engage students by offering curricula and programs that connec schoolwork with college and career success

and that improve students' capacity to manage challenges in and out of school.

▼ Show More

4 For schools with many at-risk students. create small. personalized communities to facilitate

monitoring and support.

▼ Show More

Next Steps

For any given CSI or TSI school, find a study that measures the relationship between the intervention and outcome of interest, through various sources:

- Online clearinghouses that compile and evaluate research studies
- Research studies not evaluated in clearinghouses
- Single study reviews commissioned through IES

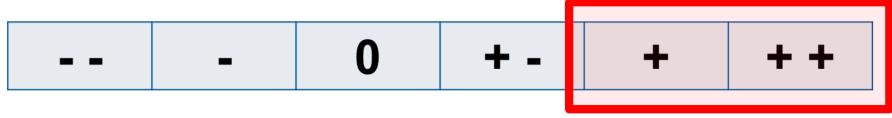
Next Steps (continued)

Ensure that the study:

- uses a research design that, at least, includes controls for bias to measure the relationship between practice and outcome (criteria 1 and 2) and
- demonstrates significant favorable effect without overriding effects from a Tier 1 or Tier 2 study (criteria 3 and 4).

Next Steps (continued)

Any practice in Find What Works that meets significance criteria for outcome of interest at least meets Tier 3.



Any practice in Educator Practice Guides with moderate or strong evidence ratings at least meets Tier 3.



Q & A

Contact Us

David English



Senior
Technical Assistance
Consultant
denglish@air.org

202-403-6930

Website: midwest-cc.org

Twitter: @MidwestCompC

MIDWEST Comprehensive Center

at American Institutes for Research

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