

# **Best Practices in Study Reporting: The What Works Clearinghouse Guide for Authors**

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# Webinar agenda

- ◆ **What is the WWC?**
- ◆ **What information does the WWC look for in studies?**
- ◆ **What happens if the WWC needs more information than I provided?**
- ◆ **Additional WWC resources**
- ◆ **Participant Q&A**

# **What is the What Works Clearinghouse™?**

# WWC: Who, what, why, and how?

## Who we are:

- ◆ An initiative of the Institute of Education Sciences (IES) at the U.S. Department of Education

## What we do:

- ◆ Evaluate existing research on educational topics and summarize the evidence in accessible products

## Why we do it:

- ◆ To provide educators and other stakeholders with information to make evidence-based decisions

## How we do it:

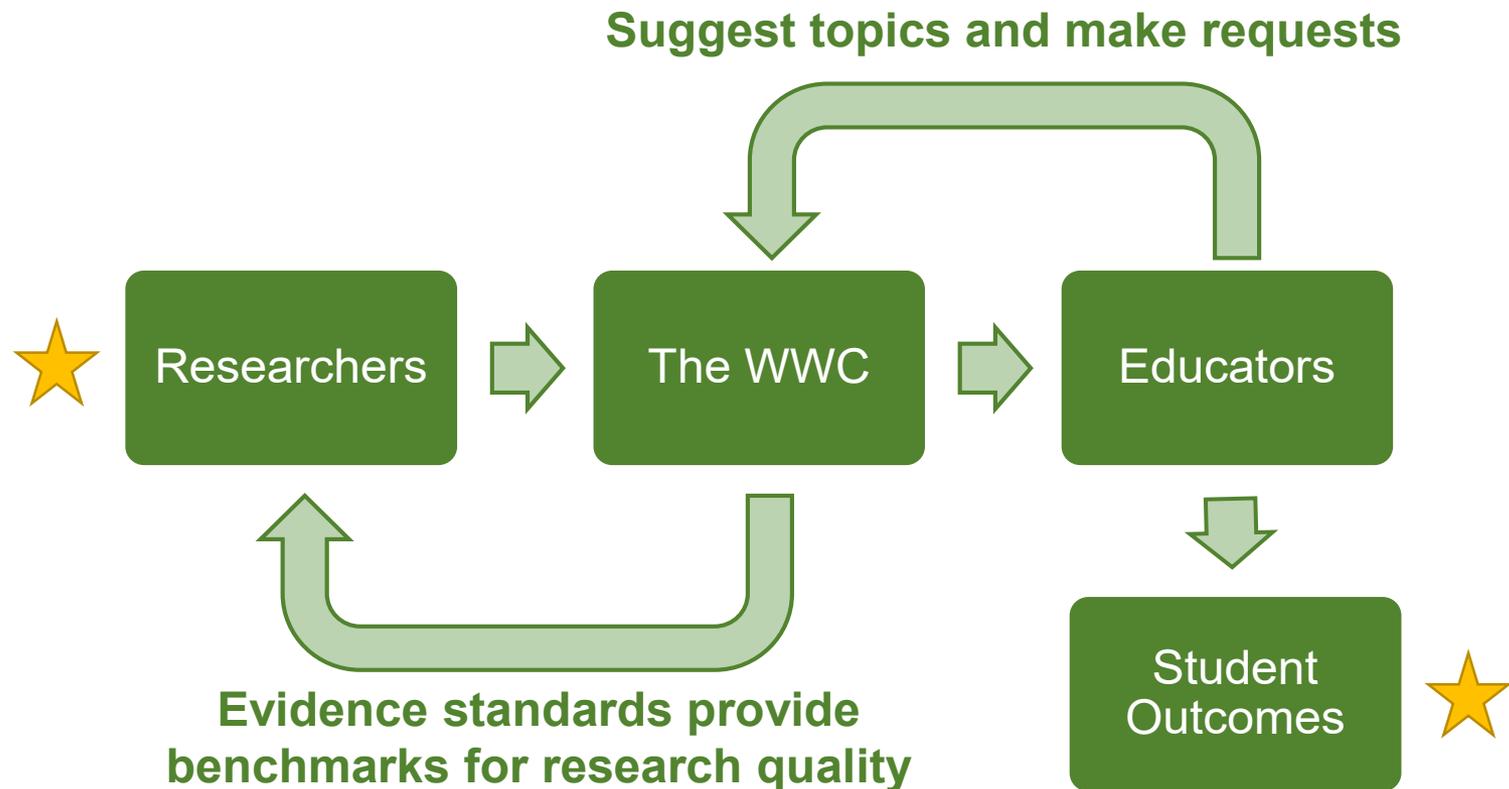
- ◆ Assess study quality using rigorous design standards and a transparent review process



ALL WWC RESOURCES AND PRODUCTS ARE FREE

# The WWC and you

- ◆ Like researchers, the WWC seeks to advance scientific evidence for what works in education



# The WWC summarizes evidence and context

◆ Documents study characteristics and context

◆ Summarizes evidence within and across studies



**Intervention reports** review research on specific interventions and synthesize findings from rigorous studies



**Practice guides** help educators address challenges using evidence-based strategies



**Quick reviews** provide timely assessments of recent research studies receiving public attention



**Individual-study reviews** summarize individual studies the WWC has reviewed



# Reflection

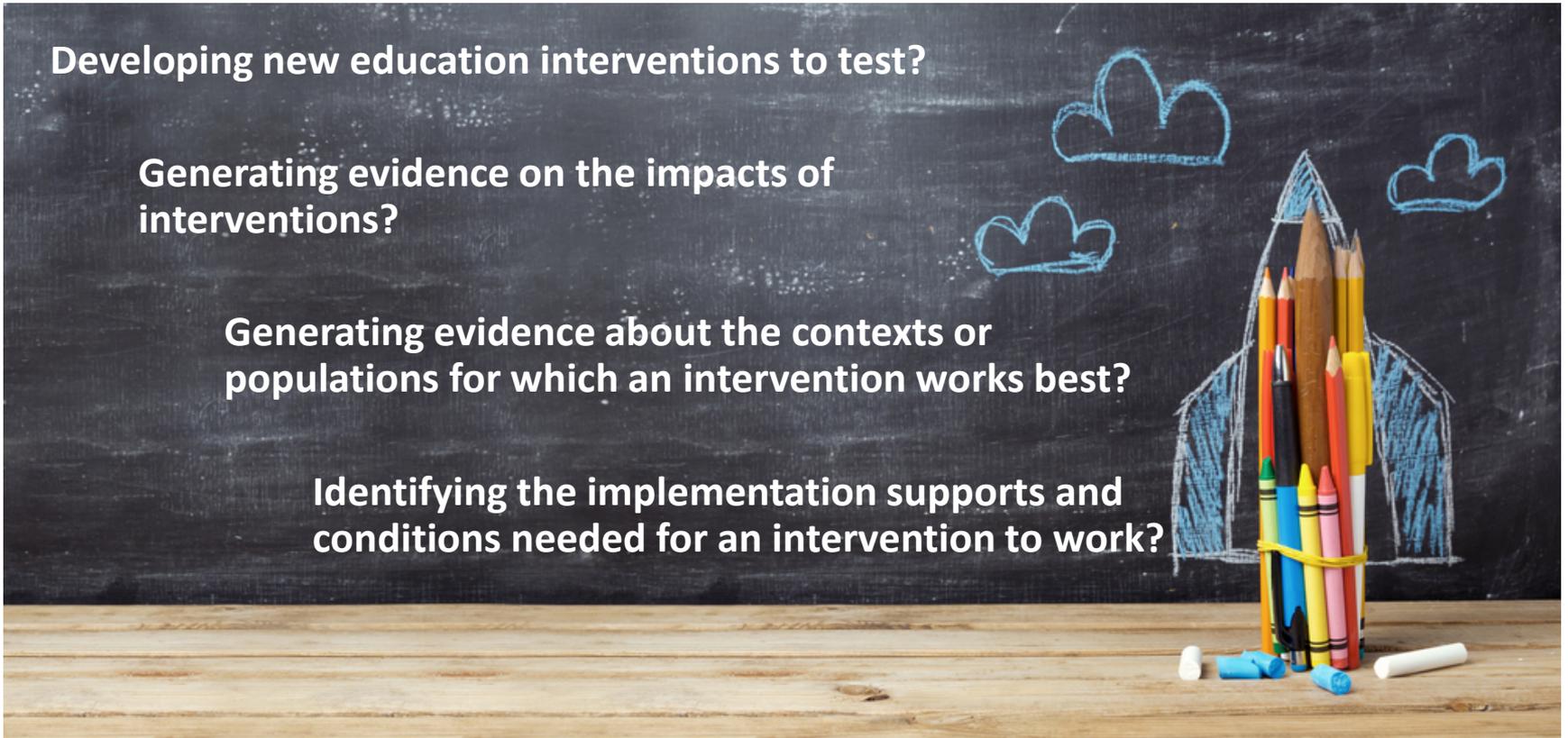
- ◆ **Take a moment to think about how you see your role in building scientific evidence about what works in education**

**Developing new education interventions to test?**

**Generating evidence on the impacts of interventions?**

**Generating evidence about the contexts or populations for which an intervention works best?**

**Identifying the implementation supports and conditions needed for an intervention to work?**



**What information does the WWC look for  
in studies?**

# The WWC looks for evidence of causal effects

## ◆ Rates the quality of evidence that a study provides about the effects of an intervention

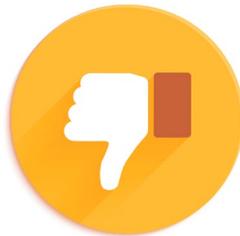
- ◆ Does the study have a design that can support causal inferences about the impact of an intervention on student outcomes?



- ◆ Rules out other potential causes of effects



- ◆ Sample attrition
- ◆ Nonrandom assignment



- ◆ No comparison group
- ◆ Baseline nonequivalence
- ◆ Confounding factors

# Study information the WWC seeks

Study characteristics  
and context

**Intervention and  
comparison  
conditions**

**Study sample**

**Setting**

Study design and  
analysis

**Measures**

**Design**

**Analytic  
approach**

**Missing data**

Study data

**Outcome and  
baseline data**

**Sample sizes**

**Imputed data**

# Study characteristics and context

Study  
characteristics  
and context

**Intervention  
and comparison  
conditions**

**Study sample**

**Setting**

- ◆ **What intervention does this study evaluate?  
What services, if any, were provided to the  
comparison group?**
  - ◆ Duration, intensity, content, delivery
  - ◆ Implementation supports
  - ◆ Delivery method

# Study characteristics and context

Study  
characteristics  
and context

Intervention  
and comparison  
conditions

Study sample

Setting

- ◆ **What intervention does this study evaluate?  
What services, if any, were provided to the  
comparison group?**
- ◆ **Who participated in the study?**
  - ◆ Student ages or grade levels
  - ◆ Student population or subgroup
  - ◆ School type
  - ◆ Student background characteristics

# Study characteristics and context

Study  
characteristics  
and context

Intervention  
and comparison  
conditions

Study sample

Setting

- ◆ **What intervention does this study evaluate?  
What services, if any, were provided to the  
comparison group?**
- ◆ **Who participated in the study?**
- ◆ **Where did the intervention occur?**
  - ◆ Country or state
  - ◆ Urban, suburban, or rural setting
  - ◆ School or classroom context

# Study design and analysis

Study design  
and analysis

Measures

Design

Analytic  
approach

Missing data

- ◆ **What outcome measures were used to assess the impacts of the intervention?**
  - ◆ Measures and psychometric properties
  - ◆ Scoring procedures
  - ◆ Collection procedures for intervention and comparison group outcomes

# Study design and analysis

Study design  
and analysis

Measures

◆ **What outcome measures were used to assess the impacts of the intervention?**

Design

◆ **How were participants identified, recruited, and assigned to study groups?**

Analytic  
approach

- ◆ Individuals or clusters
- ◆ Random or non-random assignment
- ◆ Assignment procedures and processes

Missing data

# Study design and analysis

## Study design and analysis

Measures

- ◆ **What outcome measures were used to assess the impacts of the intervention?**

Design

- ◆ **How were participants identified, recruited, and assigned to study groups?**

Analytic approach

- ◆ **What analytic methods were used to estimate impacts and calculate effect sizes?**

Missing data

- ◆ Individual-level or aggregated analysis
- ◆ Method to compare group outcomes
- ◆ Statistical significance calculation
- ◆ Units included in the analytic sample

# Study design and analysis

## Study design and analysis

Measures

- ◆ **What outcome measures were used to assess the impacts of the intervention?**

Design

- ◆ **How were participants identified, recruited, and assigned to study groups?**

Analytic approach

- ◆ **What analytic methods were used to estimate impacts and calculate effect sizes?**

Missing data

- ◆ **How did the analysis account for missing data?**
  - ◆ **Methods and software**

# Study data

Study data

Outcome and  
baseline data

Sample sizes

Imputed data

## ◆ What are the data for each analysis?

- ◆ Sample sizes, means, and unadjusted standard deviations for intervention and comparison groups

	Intervention group			Comparison group		
	N	Mean	SD	N	Mean	SD
Spring numeracy test	55	12.5	1.8	60	11.3	1.7
Fall numeracy test	55	7.9	1.1	60	8.2	1.3

- ◆ Estimated effect of the intervention

	Estimated effect	P-value	Effect size
Spring numeracy test	$t = 3.7$	0.0004	0.69

# Study data

Study data

Outcome and  
baseline data

Sample sizes

Imputed data

◆ **What are the data for each analysis?**

◆ **What are the sample sizes for each analysis?**

- ◆ RCTs: Number of individuals in intervention and comparison groups at random assignment

<i>RCTs</i>	Intervention group	Comparison group
N of individuals randomly assigned	55	65

# Study data

Study data

Outcome and  
baseline data

Sample sizes

Imputed data

<i>Cluster designs</i>	<i>Intervention group</i>			<i>Comparison group</i>		
	<i>Clusters in analytic sample</i>	Individuals in clusters		<i>Clusters in analytic sample</i>	Individuals in clusters	
		Fall	Spring		Fall	Spring
N	5	63	60	6	67	63

## ◆ What are the sample sizes for each analysis?

- ◆ RCTs: Number of individuals in intervention and comparison groups at random assignment
- ◆ Cluster designs: Number of clusters in analytic sample for intervention and comparison groups, and number of individuals in each cluster

# Study data

Study data

Outcome and  
baseline data

Sample sizes

Imputed data

<i>Cluster RCTs</i>	Intervention group	Comparison group
N of clusters randomly assigned	5	7
N of clusters in analytic sample	5	6
N of individuals, including joiners, in clusters in analytic sample at earliest point after all joiners have joined	65	70

## ◆ What are the sample sizes for each analysis?

- ◆ RCTs: Number of individuals in intervention and comparison groups at random assignment
- ◆ Cluster designs: Number of clusters in analytic sample for intervention and comparison groups, and number of individuals in those clusters
- ◆ Cluster RCTs: Number of clusters in intervention and comparison groups at random assignment, and number of individuals in analytic sample after joiners

# Study data

Study data

**Outcome and  
baseline data**

**Sample sizes**

**Imputed data**

	Intervention group			Comparison group		
<i>Sub-samples for numeracy test</i>	N	Fall mean	Spring mean	N	Fall mean	Spring mean
Both fall and spring	55	7.9	12.5	55	8.2	11.3
Fall only	0	---	---	0	---	---
Spring only	0	---	---	5	---	11.5
Correlation between fall and spring measures						0.89

## ◆ What are the imputed data for each analysis?

- ◆ Number of individuals and baseline and outcome means for intervention and comparison groups
- ◆ Correlation between baseline and outcome measures

**What happens if the WWC needs more information than I provided?**

# The WWC makes an “author query”

- ◆ **A request sent to a study author for additional or clarifying information needed to review a study**
  - ◆ Authors typically have two weeks to respond
  - ◆ All information received is used for review and documented in a report made available to the public
  - ◆ If no response is received, WWC proceeds with available information



# The WWC will request information needed

- ◆ **The WWC will ask for any information not provided that could affect the study's rating**
  - ◆ Sample sizes
  - ◆ Baseline or outcome statistics
  - ◆ Information on group formation, confounding factors, outcome measures, imputation procedures
- ◆ **The WWC may ask for other information that could be reported**
  - ◆ Sample characteristics
  - ◆ Features of the intervention or comparison group condition
  - ◆ Analyses referenced in the study (but not presented)
- ◆ **The WWC does not ask for authors to conduct new analyses**

# **Additional WWC resources**

# Resources



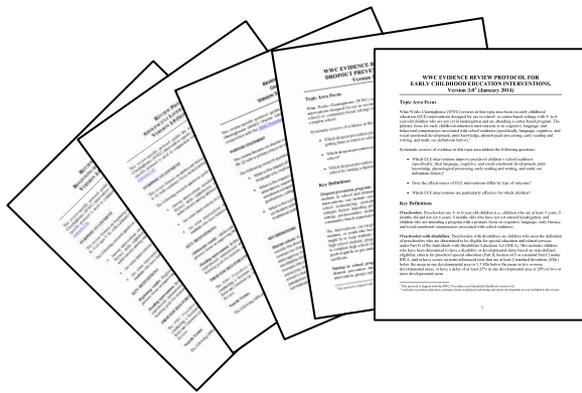
## WWC Reporting Guide for Study Authors:

Group Design Studies

<https://ies.ed.gov/ncee/wwc/Document/235>

Regression Discontinuity Design Studies

<https://ies.ed.gov/ncee/wwc/Document/283>



## WWC Review Protocols:

<https://ies.ed.gov/ncee/wwc/Handbooks#protocol>

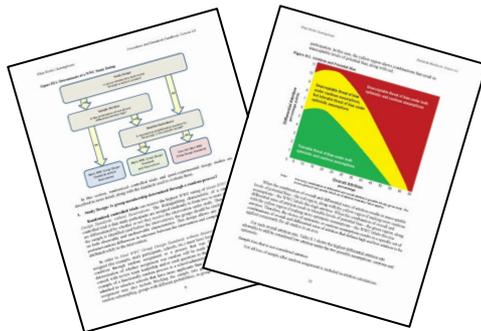
## WWC Procedures and Standards Handbooks:

Procedures Handbook

[https://ies.ed.gov/ncee/wwc/Docs/referenceresources/wwc\\_procedures\\_handbook\\_v4.pdf](https://ies.ed.gov/ncee/wwc/Docs/referenceresources/wwc_procedures_handbook_v4.pdf)

Standards Handbook

[https://ies.ed.gov/ncee/wwc/Docs/referenceresources/wwc\\_standards\\_handbook\\_v4.pdf](https://ies.ed.gov/ncee/wwc/Docs/referenceresources/wwc_standards_handbook_v4.pdf)



# **Participant Q&A**

# Staying connected with the WWC



## Find What Works:

<https://ies.ed.gov/ncee/wwc/>



## Email-based Newsflash List:

<https://ies.ed.gov/newsflash/>



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