WWC review protocols: What’s the point?

Sarah D. Sahni, PhD
Principal Researcher
What Works Clearinghouse

Herbert Turner, PhD
Principal Scientist
What Works Clearinghouse

Sarah Caverly, PhD
Principal Researcher
What Works Clearinghouse
Presenters

Sarah D. Sahni, PhD
What Works Clearinghouse

Herbert Turner, PhD
What Works Clearinghouse
Learning goals for the webinar

During this webinar, you will learn about:

• Different types of WWC protocols
• The protocol development process
• The use of protocols in practice
Different types of WWC protocols
A WWC review protocol:
- Defines the scope and parameters of the review, such as eligible interventions, settings, populations, and outcomes.
- Presents topic-specific applications of the WWC design standards.

Every WWC protocol corresponds with a specific version of the WWC standards and procedures that is available when the protocol is published.
Vetting. All versions have been shared for public comment.

**Note.** RCT = randomized controlled trial. QED = quasi-experimental design.

SCD = single-case design. RDD = regression discontinuity design.
WWC protocols developed or updated with the release of WWC handbooks

<table>
<thead>
<tr>
<th>Protocol Development</th>
<th>Handbook Versions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>May 2008 (Version 1.0)</td>
</tr>
<tr>
<td>New</td>
<td>17</td>
</tr>
<tr>
<td>Update</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>17</td>
</tr>
</tbody>
</table>
# Most frequently updated WWC protocols

<table>
<thead>
<tr>
<th>Topic Area</th>
<th>First Published as Version 1.0</th>
<th>Number of Updates</th>
<th>Currently Published as Version 4.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning Reading</td>
<td>2005</td>
<td>3</td>
<td>No</td>
</tr>
<tr>
<td>English Language Learners</td>
<td>2006</td>
<td>4</td>
<td>Yes</td>
</tr>
<tr>
<td>Review of Individual Studies</td>
<td>2008</td>
<td>4</td>
<td>Yes</td>
</tr>
<tr>
<td>Adolescent Literacy</td>
<td>2009</td>
<td>4</td>
<td>Yes</td>
</tr>
</tbody>
</table>
What’s new in Version 4.1 that impacts review protocols?

• The Educational Resources Information Center (ERIC) is now the initial source of studies for WWC reviews.

• Version 4.1 provides guidance on which manuscript takes precedence in WWC reviews when multiple manuscripts are available.

• Master’s theses can be included in literature searches for reviews.
Review criteria in WWC standards and Applied in WWC protocols

<table>
<thead>
<tr>
<th>WWC Standards Handbook 4.1</th>
<th>WWC Review Protocols 4.0 (n = 13)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sets Default Criteria</strong></td>
<td><strong>Defines Topic-Specific Application</strong></td>
</tr>
<tr>
<td>Design</td>
<td>Eligibility Type</td>
</tr>
<tr>
<td>Outcomes</td>
<td>Domains and Psychometrics</td>
</tr>
<tr>
<td>Confounds</td>
<td>Examples</td>
</tr>
<tr>
<td>Attrition</td>
<td>Boundaries</td>
</tr>
<tr>
<td>Baseline Equivalence</td>
<td>Eligible Pretest Variables</td>
</tr>
<tr>
<td>Assignment (Cluster versus Individual)</td>
<td>-</td>
</tr>
<tr>
<td>Risk of Bias (Cluster Studies)</td>
<td>Joiners and Non-Response</td>
</tr>
<tr>
<td>Missing Data</td>
<td>Acceptable Approaches</td>
</tr>
</tbody>
</table>
Three types of protocols

- Protocols for Intervention Reports
- Protocols for Practice Guides
- Reviews of Individual Studies Protocol
Intervention reports

• An intervention report is a summary of findings of the highest-quality research on a specific program, practice, or policy in education.

• The WWC searches for all research studies on an intervention, reviews each against evidence standards, and summarizes the findings of studies that meet standards.
Understanding fractions is a critical skill for success in school and the workforce, and is often necessary for daily life tasks like distributing work or cooking a meal. Fractions are also an important precursor to other math courses, such as algebra. Fraction Face-Off! is a supplemental math program designed to support fourth-grade students who need assistance solving fraction problems. Teachers use program materials with individual students or small groups to promote understanding of the magnitude of fractions, to compare two fractions, to put three fractions in order, and to place fractions on a number line. The program includes 36 lessons, each with four activities: a warm-up problem, group work, a speed game to build fluency, and a worksheet to check students’ understanding. These lessons are designed to be taught three times a week for 12 weeks.

What Works Clearinghouse (WCC), part of the WCC’s Primary Mathematics topic area, explores the effects of Fraction Face-Off! on mathematics outcome domains including geometry and measurement, number and operations, and general mathematics achievement. The WCC identified one study of Fraction Face-Off!, which meets WWC standards. The evidence presented in this report is from one study of the impact of Fraction Face-Off! on a racially and ethnically diverse group of fourth-grade students.

**Table 1. Summary of findings on Fraction Face-Off! from one study that meets WWC Standards**

<table>
<thead>
<tr>
<th>Outcome domain</th>
<th>Effectiveness rating</th>
<th>Improvement index (percentile points)</th>
<th>Number of studies</th>
<th>Number of students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geometry and measure</td>
<td>Potentially positive effects</td>
<td>+33</td>
<td>1</td>
<td>212</td>
</tr>
<tr>
<td>Number and operations</td>
<td>Potentially positive effects</td>
<td>-31</td>
<td>1</td>
<td>1,152</td>
</tr>
<tr>
<td>General mathematics achievement</td>
<td>Potentially positive effects</td>
<td>-24</td>
<td>1</td>
<td>1,152</td>
</tr>
</tbody>
</table>

Note: The improvement index can be interpreted as the expected change in percentile rank for an average comparison group student if that student had received the intervention. For example, an improvement index of +33 means that the expected percentile rank of the average comparison group student would increase by 33 points if the student received Fraction Face-Off! The improvement index values are generated by averaging findings from the outcome analyses that meet WWC standards, as reported by Fuchs et al. (2013). The outcomes in the geometry and measurement domain were only examined in one of the five student cohorts examined in the study and therefore are based on fewer students than the analyses in the number and operations and general mathematics achievement domains. Geometry and measurement outcomes reported in the study include two researcher-designed measures: 1) a fraction magnitude comparison test and 2) a fraction magnitude explanation test. Number and operations outcomes reported in the study include six researcher-designed measures: 1) a test of comparing and representing fractions, 2) a fraction number line test, 3) a test of fraction calculations, 4) a test of word problems requiring multiplication, 5) a test of word problems requiring addition, and 6) a test of word problems requiring fractions. General mathematics achievement outcomes reported in the study include a collection of selected items from the National Assessment of Educational Progress (NAEP). The effects of Fraction Face-Off! are not known for other outcomes within the Primary Mathematics topic area, including data analysis, statistics, and probability, and algebra.
Protocols for intervention reports

• An intervention report protocol can be used for many intervention reports.
  • Used to review any program, practice, or policy that falls within the scope of that particular protocol.

• Example: The Adolescent Literacy protocol has been used for 32 different intervention reports published on the WWC website.
Practice guides

- Practice guides present recommendations for educators to **address specific challenges** in their classrooms and schools.

- Practice guides focus on educational challenges, while intervention reports focus on specific programs or practices.
Practice guide protocols

• Each practice guide has its own protocol.

• Practice guide protocols may overlap in scope with intervention report protocols:

<table>
<thead>
<tr>
<th>Teaching Mathematics to Young Children Practice Guide Protocol</th>
<th>Elementary School Mathematics Interventions Protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Includes mathematics programming for pre-kindergarten and kindergarten students</td>
<td>• Mathematics interventions for kindergarten through fifth grade</td>
</tr>
</tbody>
</table>

• Practice guides tailor sample, outcomes, etc., for the practice guide goals.
Reviews of individual studies protocol (RISP)

- The WWC also reviews individual studies outside of intervention reports or practice guides:
  - Studies receiving significant media attention.
  - Studies funded by the U.S. Department of Education.
  - Studies reviewed as part of a grant competition.

- Individual study reviews are guided by the RISP.

- The RISP provides a single set of procedures to review individual studies.
  - Important for grant competitions to ensure a fair assessment of evidence provided by all grantees.
Reviews of individual studies protocol (RISP)

• The RISP covers a much larger set of programs, practices, and policies than the other protocols.

• The RISP includes a larger set of outcomes than other protocols—59 outcome domains in eight broad outcome categories. For example:
  • Educational attainment, short term and long term
  • Social-emotional learning and behavior
  • Labor market outcomes, short term and long term
The protocol development process
Who writes protocols, and what is the process?

- Protocols for intervention reports and single-study reviews:
  - Review team leaders
  - External content experts

- Protocols for practice guides:
  - Review team leaders
  - Panel of at least six members, including at least two practitioners

- Review team leaders write the protocol in consultation with:
  - Content experts (topic areas)
  - Panel chair (practice guides)

- Writers and contributors are approved by IES.
Developing a protocol: Process and key considerations

Protocol development can be triggered by:
• Release of a new version of the Standards
• New topic approved by IES

Protocol development starts with:
• Template (internally developed)
• Past protocols (as examples)

Protocol development focuses on:
• Purpose
• Interventions
• Populations
• Outcome domains
• Literature searches
• Topic-specific applications of standards
What is the process for protocol approval?
What are the key criteria for protocol approval?

• Topic area, purpose, and questions are clearly written and well-described

• Aligned with state-of-the-art in the field of inquiry:
  • Substantively
  • Methodologically

• Topic-specific applications of standards are appropriate and consistent
Meet the protocol template!*

• Why a template?
  • Provides a single set of guidance to all review teams about what should be included in each protocol.
  • Standardizes sections and content across protocols.
  • Standardization makes protocols easier to use for reviewers.

• What is in the template?
  • A template outline providing headers for each section.
  • Accompanying guidance describing the content to be included in each section of the template and references to default approaches in the handbooks, with document and page number references.

*The new protocol template is currently under review with IES.**

**But it’s going to be great when you see it.
REVIEW PROTOCOL FOR
PROTOCOL TITLE
VERSION X.Y (MONTH YEAR)

This review protocol guides the review of research that informs the What Works Clearinghouse (WWC) [insert Protocol Title] topic area. The review protocol is used in conjunction with version 4.1 of the WWC Standards Handbook and WWC Procedures Handbook.

IMPORTANCE OF THE PROBLEM
Text.

TYPES OF INTERVENTIONS/TYPES OF PRACTICES
Text.

HOW THE INTERVENTION(S) OR PRACTICES MIGHT WORK
Text.

TARGET POPULATION CHARACTERISTICS
Text.

RELATIONSHIP TO OTHER WWC TOPIC AREAS (OPTIONAL)
Text.

KEY DEFINITIONS (OPTIONAL)
Text.

ELIGIBILITY CRITERIA
Eligible populations
Text.
Eligible research
Text.
Eligible interventions
Text.
Scoring systems for intervention reports (optional)
Text.
Eligible outcomes
Review Protocol Development Guide
March 2020

All What Works Clearinghouse (WWC) study reviews are guided by the WWC Standards Handbook, the WWC Procedures Handbook, and a review protocol. The Standards Handbook sets forth the rules against which studies are judged, and the Procedures Handbook outlines the basic steps and processes used by the WWC for systematic reviews. Both documents are supplemented by a review protocol that outlines how specific standards and procedures are implemented for a particular group, and that protocol defines the parameters of the review. This guide was created to help teams develop WWC review protocols for intervention reports and practice guides.

GENERAL GUIDANCE
Write the protocol in a way that is understandable to decision makers, individuals who implement the intervention(s) or practice, and individuals—such as the parents of participating children—who might be affected by the intervention(s) or practice reviewed under the protocol. However, the protocols are intended as supplemental documents to the WWC Standards and Procedures handbooks; they should not replace issues or rephrasing terms covered in the handbooks but should direct users to the appropriate references in the handbooks when necessary.

TITLE
 Succinctly state the focus of the review in the title. Most WWC protocols currently include the phrase “review protocol” or “reviewers’ guide protocol” in their titles. Protocol authors should attempt to incorporate one of these values doing so makes the title unambiguous. In addition, the title or heading should include the version of the WWC Standards and Procedures governing the protocol.

IMPORTANCE OF THE PROBLEM
Concisely introduce the general goals of the intervention(s) or practice that will be reviewed using this protocol, including implications for current practice and policy. In addition, describe the goals of the review and the questions it will address. Review protocols for practice guides should describe the intended audience.

TYPES OF INTERVENTIONS/TYPES OF PRACTICES
Briefly describe the types of interventions or practices that the protocol is used for a practice guide, that will be reviewed using this protocol. These descriptions should be broad enough to cover all of the different types of interventions and practices that might be reviewed. Do not attempt to provide an operational definition of eligible interventions or practices here, as this will be addressed later.
Sections of the protocol template

- Protocols begin with big picture information about the goals of the review:
  - What is the important problem these interventions address
  - Types of interventions or practices being reviewed
  - Why they are important
  - How they work, and
  - Who they are for.
The next sections of the protocol include the details of the criteria.

- Reviewers consult these sections when conducting reviews.
- Primary researchers reference these sections to understand how their own study may be evaluated by the WWC.

The final section of protocol is the Literature Search Procedures section.
The use of protocols in practice
Step 1: Go to https://ies.ed.gov/ncee/wwc/ and select “Review Protocols”
Protocols on the WWC website

Protocols on the WWC website


Step 4: Read or download the PDF.
How do WWC reviewers use protocols?

<table>
<thead>
<tr>
<th>WWC Web-Based Study Review Process</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WWC Review Role</strong></td>
</tr>
<tr>
<td>Review Team Leaders</td>
</tr>
<tr>
<td>Coordinators</td>
</tr>
<tr>
<td>Screeners</td>
</tr>
<tr>
<td>Reviewers</td>
</tr>
<tr>
<td>Reconcilers</td>
</tr>
</tbody>
</table>

Protocols and the Online Study Review Guide (OSRG)

• All official WWC reviews conducted within the OSRG

• When a new study review begins, the Coordinator selects the study and:
  o Intervention
  o Standards Version
  o Protocol Version
  o Review Purpose
  o Contract

• The Coordinator assigns the study as a Task
  • Screen not shown here

Begin a new review process

Study citation

Intervention
  - Select intervention -

Standards version
  - Select standards version -

Protocol
  - Select protocol -  

Protocol version
  - Select version -

Reason for review
  - Select purpose -

Reviewed under contract
  - Select contract -

Save
1. The Reviewer receives email notification from system@SRG.com that there is a “WWC.SRG Task Assignment.”
1. The Reviewer receives email notification from system@SRG.com that there is a “WWC.SRG Task Assignment.”

2. Logs into the online SRG (at WWC.SRG).
1. The Reviewer receives email notification from system@SRG.com that there is a “WWC.SRG Task Assignment.”

2. Logs into the online SRG (at WWC.SRG).

3. And sees the assigned task(s) on the “My Tasks” dashboard and assigned protocol.
1. The Reviewer receives email notification from system@SRG.com that there is a “WWC.SRG Task Assignment.”

2. Logs into the online SRG (at WWC.SRG).

3. And sees the assigned task(s) on the “My Tasks” dashboard and assigned protocol.

4. Reviewer can begin the review by screening the study for eligibility based on assigned WWC protocol and standards.
Protocols and the OSRG

• Selecting the protocol will predetermine OSRG:
  o Outcome domains
  o Attrition boundaries

• Selecting the protocol will not determine OSRG:
  o Eligibility criteria
  o Exceptions to attrition standards
  o Outcome measure standards
  o Whether or which joiners or non-responders pose a risk of bias
In the OSRG, studies are reviewed by the reported results for each outcome measure eligible under the protocol. To begin the study review, reviewers select “add a new outcome” to the OSRG.
## Limited by the protocol: Outcome domains and measures

### Beginning Reading Review Protocol

**Add measure.**

<table>
<thead>
<tr>
<th>Domain</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Select domain -</td>
<td></td>
</tr>
<tr>
<td>- Select domain -</td>
<td></td>
</tr>
<tr>
<td>Alphabetic</td>
<td></td>
</tr>
<tr>
<td>Comprehension</td>
<td></td>
</tr>
<tr>
<td>Demographics</td>
<td></td>
</tr>
<tr>
<td>Literacy achievement</td>
<td></td>
</tr>
<tr>
<td>Reading achievement</td>
<td></td>
</tr>
<tr>
<td>Reading comprehension</td>
<td></td>
</tr>
<tr>
<td>Reading fluency</td>
<td></td>
</tr>
</tbody>
</table>

Is this measure a standardized test? [ ] Yes [ ] No

Is this measure dichotomous? [ ] Yes [ ] No
Limited by the protocol: Outcome domains and measures

Practice Guide Review Protocol for Workforce Development at Community Colleges

Add measure.

Domain

- Select domain -

- Select domain -
Academic achievement
College attendance
College enrollment
Credential attainment
Earnings
Employment
Postsecondary degree attainment
Progressing in college

Is this measure dichotomous? Yes No

Yes No
Which protocol should researchers use?

Researchers should use RISP 4.0 for these reasons:

1. RISP addresses fundamental methodological considerations relevant to any protocol
   - E.g., confounds, attrition, baseline equivalence

2. RISP can help identify which of the study’s findings may be eligible for a WWC review

3. Because outcome domains in RISP are aligned to other protocols, RISP can help identify a topic area protocol better suited for the intervention
Questions?
Have questions? Contact us: https://ies.ed.gov/ncee/wwc/help

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Recommended resources

WWC Handbooks: Procedures and Standards
https://ies.ed.gov/ncee/wwc/protocols#procedures

WWC Protocols:
https://ies.ed.gov/ncee/wwc/protocols

WWC Web-Based Study Review Guide:

Video about Who Works on the WWC (WWC Team Roles):
https://www.youtube.com/watch?v=A4rToe9_YCw

WWC Online Study Review Guide for RCTs and QEDs:

WWC Study Review Guide for Group Designs:

Reporting Guide for Study Authors: Group Designs