What Works in Education?:

Using the What Works Clearinghouse to Find High Quality Education Research

Erin Pollard
ERIC Project Officer
Institute of Education Sciences
US Department of Education
Webinar agenda

- What is the What Works Clearinghouse?
- WWC Standards and Procedures
- Types of WWC Products
- WWC Website and Resources
What is the What Works Clearinghouse?
What is the WWC?

**WHAT**
The WWC reviews evidence of effectiveness of programs, policies, or practices by using a consistent and transparent set of standards. The WWC doesn’t rank, evaluate, or endorse interventions.

**EFFECTIVENESS STUDIES**
- Randomized Controlled Trials
- Quasi-Experimental Designs

**PRIORITY TOPIC**
How we screen studies

1. Screen studies for eligibility

2. Review study findings according to WWC Standards

3. Synthesize and report results
Example

Improved reading scores by 30 points!

EOY  BOY

New

Old

Old 2
What Works Clearinghouse
Procedures and Standards Handbook, Version 5.0

Purpose Statement
The What Works Clearinghouse (WWC) Study Review Protocol guides the reviews of evidence by the WWC. This protocol is intended to ensure consistency with the WWC's findings standards, including the final evidence standards.

Eligibility Criteria
Eligible Populations
The eligible populations under this protocol are the study's target population where the intervention is intended to improve outcomes. The intervention is defined as a set of planned and systematic changes to the usual educational practices or to the ongoing educational program(s) that result in intended outcomes. The protocol is intended for use with groups of students, teachers, and/or schools, to evaluate the impact of evidence-based interventions and practices on student outcomes.

Eligible Interventions
The eligible interventions are those that can be implemented in schools and have been previously tested. The evidence is intended to guide the development of evidence-based practices and programs. Therefore, the following types of interventions are included within the protocol:
- Programs of intervention that have been shown to be effective in achieving specific outcomes
- Program evaluation practices that have been shown to be effective in assessing the effectiveness of educational interventions

Eligible Reviewers
The eligible reviewers are those who have completed the WWC's training and are knowledgeable about the WWC's findings standards. The protocol is intended for use by reviewers who have completed the WWC's training and are knowledgeable about the WWC's findings standards.
Screening questions

1. Is the research report eligible? 
2. Is the research design eligible? 
3. Is the population eligible? 
4. Is the intervention eligible? 
5. Is at least one outcome eligible?

If any of the questions have a No (N) answer, the review stops.
Process for reviewing a study

- Individual-level RCT with low attrition?
  - Y
  - No: optimistic boundary used
  - N: cautious boundary used
  - N
  - Use an acceptable adjustment strategy if required?
    - Y
    - N

- Baseline differences no greater than 0.25 standard deviation?
  - Y
  - N

Eligible for the rating
- MEETS WWC STANDARDS WITHOUT RESERVATIONS
- MEETS WWC STANDARDS WITH RESERVATIONS

Rated
- DOES NOT MEET WWC STANDARDS
Attrition
Baseline equivalence

Figure 1: Why demonstrating baseline equivalence is important

**September 2013**
Baseline period, used to demonstrate equivalence of analytic sample

**May 2014**
Follow-up period, used to demonstrate effect of the intervention

**Intervention Group**
- A+
- A
- A

**Comparison Group**
- A−
- B
- B

**Interpretation at a glance:**
Program appears to be very effective at improving student achievement—the intervention group has more high scoring students.

**Interpretation accounting for baseline achievement:**
Groups look very dissimilar at baseline in terms of achievement. The intervention group has more high-achieving students.

**Conclusion:**
While the intervention group has higher achievement in May 2014, its members started off with higher achievement at baseline in September 2013. If the groups’ baseline achievement levels are very different from each other (Figure 2), then the WWC will conclude that the groups are not equivalent and the study *Does Not Meet WWC Group Design Standards*.

---

1. Attrition refers to loss of sample, when individuals initially randomly assigned in a study are not included in the analysis. See the [WWC Standards Brief for Attrition](#) for more information on this topic.
Process for reviewing a study

Individual-level RCT with low attrition?  
- Y  
  - Baseline differences no greater than 0.25 standard deviation?  
    - Y  
      - Use an acceptable adjustment strategy if required?  
        - Y  
          - Eligible for the rating  
            - MEETS WWC STANDARDS WITHOUT RESERVATIONS  
        - N  
          - Rated  
            - DOES NOT MEET WWC STANDARDS  
    - N  
      - No: cautious boundary used  
        - Eligible for the rating  
          - MEETS WWC STANDARDS WITH RESERVATIONS  
  - N  
    - Eligible for the rating  
      - MEETS WWC STANDARDS WITHOUT RESERVATIONS  
  - N  
    - Rated  
      - DOES NOT MEET WWC STANDARDS
## Study ratings

<table>
<thead>
<tr>
<th>Rating level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MEETS WWC STANDARDS WITHOUT RESERVATIONS</strong></td>
<td>The highest rating a finding can receive is <em>Meets WWC Standards Without Reservations</em>. This rating is reserved for findings based on a strong research design that is well-executed. This rating therefore provides the highest degree of confidence that the intervention caused the observed effect.</td>
</tr>
<tr>
<td><strong>MEETS WWC STANDARDS WITH RESERVATIONS</strong></td>
<td>The second-highest rating a finding can receive is <em>Meets WWC Standards With Reservations</em>. Because of natural limitations in research designs or because of circumstances around execution of a design, findings that receive this rating do not sufficiently rule out that something other than the intervention caused the observed effect.</td>
</tr>
<tr>
<td><strong>Does Not Meet WWC Standards</strong></td>
<td>The lowest research rating is <em>Does Not Meet WWC Standards</em>. Findings that receive this rating are not accompanied by sufficient evidence that the intervention caused the observed effect.</td>
</tr>
</tbody>
</table>
Example of study findings

**WWC REVIEW OF THIS STUDY**

An on-ramp to student success: A randomized controlled trial evaluation of a developmental education reform at the City University of New York.


**RANDOMIZED CONTROLLED TRIAL EXAMINING 3,835 STUDENTS, GRADE PS**

<table>
<thead>
<tr>
<th>Outcome Measure</th>
<th>Comparison</th>
<th>Period</th>
<th>Sample</th>
<th>Intervention mean</th>
<th>Comparison mean</th>
<th>Significant?</th>
<th>Improvement Index</th>
<th>Evidence Tier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree or Certificate Completion</td>
<td>CUNY Start vs. Business as usual</td>
<td>6 Semesters</td>
<td>Full sample; 3,805 students</td>
<td>14.50</td>
<td>11.40</td>
<td>Yes</td>
<td>7</td>
<td>TIER 4 STRONG</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outcome Measure</th>
<th>Comparison</th>
<th>Period</th>
<th>Sample</th>
<th>Intervention mean</th>
<th>Comparison mean</th>
<th>Significant?</th>
<th>Improvement Index</th>
<th>Evidence Tier</th>
</tr>
</thead>
<tbody>
<tr>
<td>College enrollment in any college</td>
<td>CUNY Start vs. Business as usual</td>
<td>0 Days</td>
<td>Full sample; 3,805 students</td>
<td>67.60</td>
<td>64.80</td>
<td>Yes</td>
<td>3</td>
<td>TIER 4 STRONG</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outcome Measure</th>
<th>Comparison</th>
<th>Period</th>
<th>Sample</th>
<th>Intervention mean</th>
<th>Comparison mean</th>
<th>Significant?</th>
<th>Improvement Index</th>
<th>Evidence Tier</th>
</tr>
</thead>
<tbody>
<tr>
<td>College readiness outcomes—Statistically significant positive effects found</td>
<td>CUNY Start vs. Business as usual</td>
<td>1 Semester</td>
<td>Full sample; 3,805 students</td>
<td>48.90</td>
<td>25.30</td>
<td>Yes</td>
<td>24</td>
<td>TIER 4 STRONG</td>
</tr>
</tbody>
</table>

More Outcomes
## Evidence Tiers

<table>
<thead>
<tr>
<th>Effectiveness rating</th>
<th>Evidence tier</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong evidence</td>
<td>TIER 1 STRONG</td>
<td>Positive effects, with no overriding negative effects, from well-designed, well-executed experimental research conducted in multiple sites and with a sufficiently large sample.</td>
</tr>
<tr>
<td>Moderate evidence</td>
<td>TIER 2 MODERATE</td>
<td>Positive effects, with no overriding negative effects, from well-designed and well-executed quasi-experimental research conducted in multiple sites and with a sufficiently large sample, OR, for intervention reports only, positive effects, with no overriding negative effects, from well-designed and well-executed experimental research conducted in multiple sites.</td>
</tr>
<tr>
<td>Promising evidence</td>
<td>TIER 3 PROMISING</td>
<td>Positive effects, with no overriding negative effects, from well-designed and well-executed experimental or quasi-experimental research conducted in a single site or lacking a sufficiently large sample.</td>
</tr>
</tbody>
</table>
| Uncertain effects    |               | - The fixed-effects meta-analysis of main study findings (or the single main finding) in the outcome domain is not statistically significant, or the statistical significance is unknown or cannot be calculated; OR  
- The study has no main finding but at least one supplemental finding meets WWC standards. |
| Negative effects     |               | The fixed-effects meta-analysis of main study findings (or single main finding) in the outcome domain is statistically significant and negative. |
Types of WWC Products

Reviews of Individual Studies
Practice Guides
Intervention Reports
WWC Website

• Whatworks.ed.gov
Questions?
Additional questions?

Contact us at the **WWC Help Desk:**
Contact.WWC@ed.gov

Contact me:
Erin.Pollard@ed.gov