WWC Evidence Standards: Middle-School Math[a]

Causal Validity

The WWC evidence standards for determining the level of evidence of a study reviewed under the topic Middle-School Math Interventions are:

Meets Evidence Standards

- Randomized controlled trial with no randomization,[b] attrition, or disruption problems
- Regression discontinuity study with no comparability, attrition, or disruption problems

Meets Evidence Standards with Reservations

- Randomized controlled trial with a randomization,[c] attrition, and/or disruption problem
- Regression discontinuity study with a comparability, attrition, or disruption problem
- Quasi-experimental design with equivalent groups and no problems with attrition or disruption

Other Study Characteristics

In addition to determining whether a study Meets Evidence Standards or Meets Evidence Standards with Reservations, the WWC also assesses the strength of a study's evidence based on the following other study characteristics:

Intervention Fidelity. A study fully meets criteria for Intervention Fidelity (●●) if the intervention contains most of the key characteristics that commonly define it, the author provides evidence of good implementation, and the intervention is documented well enough for others to replicate it. A study meets the minimum criteria (●) if the author does not evaluate implementation or finds partial implementation, or the intervention is not documented. A study is excluded from the review (**X**) if it does not meet the initial screening requirements for the intervention by omitting key characteristics of Middle-School Math.

Outcome Measures. A study fully meets criteria for Outcome Measures (●●) if the outcome measure has face validity and reliability and is not too closely aligned[d] to the content of the intervention. A study meets the minimum criteria (●) if the outcome measure is not too closely aligned to the content of the intervention. A study is excluded from the review (**X**) if it does not meet initial screening requirements because it does not focus on important Middle-School Math outcomes or lacks face validity and/or reliability.

People, Settings, and Timing. A study fully meets criteria for People, Settings, and Timing (●●) if it broadly samples from the people (units of interest) and settings that are the target of the intervention and the outcomes are measured at an appropriate time. A study meets the minimum criteria (●) if narrow but relevant samples and settings are included. A study is excluded from the review (**X**) if it does not include at least a relevant narrow sample of people or settings.

Testing within Subgroups. A study fully meets criteria for Testing within Subgroups (●●) if it identifies important subgroups among its sample and settings, and tests the intervention effect within each subgroup separately. A study meets the minimum criteria (●) if it simply tests the intervention effect across the entire sample. A study is not excluded from the review based on this standard.

Analysis. A study fully meets criteria for Analysis (●●) if the analysis is conducted at the same level (for example, students, classes, schools) as the unit of assignment and the unit of intervention delivery or if there is a mismatch between units but sufficient information is provided to permit an approximate estimation of the intervention's effect and in either case, the data characteristics support the analysis. The study meets the minimum criteria (●) if an approximate estimation of effect at the level of assignment cannot be made. A study is not excluded from the review based on this standard.

Statistical Reporting. A study fully meets criteria for Statistical Reporting (●●) if the findings are reported for most outcome measures and effect sizes can be calculated. The study meets the minimum criteria (●) if findings are reported and effect sizes can be calculated for only some outcome measures. A study is excluded from the review (**X**) if it does not report findings for any relevant outcome measures.

Note. For each study characteristic, the WWC considers a number of features to determine if the study fully meets criteria of that characteristic (●●), meets minimum criteria (●), or does not meet minimum criteria (**X**).

[a] These criteria are applied to studies that have passed initial WWC screening for Middle-School Math. For more information on screening requirements, see the WWC Evidence Standards and screening criteria.

[b] A study with randomization problems that make statistical adjustments Meets Evidence Standards.

[c] A study with randomization problems that do not make statistical adjustments Meets Evidence Standards with Reservations.

[d] An overaligned outcome measure uses material that was part of the intervention. The control group was not exposed to this material.