

The What Works Clearinghouse (WWC) applies standards to identify high-quality research about the effectiveness of education interventions that educators can use to make informed decisions in their settings. Researchers face many trade-offs when designing studies and must make decisions that can influence the trust-worthiness of the results. By following these tips, researchers can avoid some of the most common pitfalls that prevent studies from meeting WWC standards.

- The WWC's standards and procedures are documented in the *Version 4.1 Handbooks* <https://ies.ed.gov/ncee/wwc/Handbooks>.
- Each study review is also guided by the *WWC Study Review Protocol* <https://ies.ed.gov/ncee/wwc/Document/1297>.
- WWC standards briefs describe how the WWC assesses attrition and baseline equivalence, and how the WWC identifies confounding factors: <https://ies.ed.gov/ncee/wwc/standardsbriefs>.
- A WWC reporting guide for study authors describes how to report findings in a way that is clear and complete, facilitating a WWC review and helping research inform educational practice and policy <https://ies.ed.gov/ncee/wwc/Document/235>.
- Find more WWC resources for study authors at <https://ies.ed.gov/ncee/wwc/Resources/ResourcesForStudyAuthors>.

Quasi-experimental design (QED) studies and high-attrition randomized controlled trials (RCTs)

- ✓ Review the [Study Review Protocol](#) to learn about the baseline equivalence requirements for different outcome measures.
- ✓ Use matching or other approaches that can help create intervention and comparison groups with acceptable baseline equivalence.
- ✓ Report unadjusted means and standard deviations of baseline measures for the same analytic sample used to analyze the outcome measures and report separately for the intervention and comparison groups.
- ✓ Conduct analyses that appropriately adjust for the baseline measures.
- ✓ Provide correlations between the baseline and outcome measures.

RCTs

- ✓ If individuals were randomized to either the intervention or comparison condition within blocks (districts, schools, classes), then conduct an analysis that adjusts for the different assignment probabilities.
- ✓ Maintain the integrity of random assignment by not reassigning students after initial assignment or deliberately excluding them after random assignment.
- ✓ Report attrition, or sample loss during the course of the study, for intervention and comparison groups. Studies with high attrition, or large sample loss, will need to demonstrate that even after attrition, the sample members who remain in the intervention and comparison groups in the analysis were similar on relevant characteristics at baseline.



All studies

Avoid confounding factors

- ! A confounding factor occurs when a single unit (such as a classroom, teacher, school, or district) is present for members of only one condition and absent for all members in the other condition. It is impossible to separate the degree to which an observed effect was due to the intervention and how much was due to the confounding factor.
- ✓ If possible, add another unit and assign students in the single unit to both the intervention and comparison conditions.
- ✓ When adding another unit is too expensive or there is a lack of willingness from the unit to participate, assign students to intervention and comparison conditions within the study unit (such as classroom, teacher, school, or district).

Provide evidence that outcomes are reliable

- ✓ Use established, standardized measures, when possible.
- ✓ For non-standardized measures, report their reliability, such as internal consistency, test-retest reliability, or inter-rater reliability, as specified in the [WWC Standards Handbook](#) and [Study Review Protocol](#).

Study context and intervention implementation

- ! A study can meet WWC standards even when it does not thoroughly report on the study context and intervention implementation. However, the WWC encourages study authors to follow the WWC Reporting Guide for Study Authors (<https://ies.ed.gov/ncee/wwc/Document/235>).
- ✓ Document the study sample and context.
- ✓ Describe how the intervention and comparison conditions were implemented.
- ✓ Identify the resources needed to implement the intervention and the cost of each.

