

REVIEW PROTOCOL FOR THE RTI-MATHEMATICS PRACTICE GUIDE

Time Frame

Relevant to: Screening Criteria

Protocol: **1983–Present**

We will review studies published in the last 25 years.

Study Design

Relevant to: Screening Criteria

Protocol: **RCTS, QEDs that meet WWC standards, and Regression Discontinuity Designs are eligible.**

Note: Correlational research concerning assessments will be examined by the Assessment team. If you are assigned one of these articles, please let the evidence coordinator know before you proceed.

Intervention groups may be “bundled” interventions (i.e., the intervention may be multi-faceted; for example, small group instruction with manipulatives utilizing collaborative learning techniques).

Comparison of multiple interventions are eligible for review (i.e., the comparison group does not have to be “business as usual”). Note: a thorough description of each intervention and/or comparison group will be necessary.

Comparison of different levels of the intervention are also eligible for review (for example, comparing a curriculum against the same curriculum + tutoring).

Regression Discontinuity Designs (RDDs) are eligible for review. Until WWC RDD Standards are disseminated, please make note that the study is an RDD and this will have to be sent for review by an expert in RDDs.

Single-Case Designs are not eligible for inclusion in this practice guide.

Age and/or Grade Range

Relevant to: Screening Criteria

Protocol:

Studies that focus on K–8 samples are eligible for review (this will include elementary and middle school mathematics). However, if the study relates to “Assessment/Formative” recommendations, we will review studies outside of this age range.

Location and Language

Relevant to: Screening Criteria

Protocol:

Restrict review to studies conducted in the **United States**.

The intervention does *not* have to be administered in English.

Outcomes and Domains for Multiple Comparisons

Relevant to: Screening Criteria, Full Review

Protocol:

Eligible outcomes relate to (1) student mathematics performance/achievement and (2) identification. These outcomes should be categorized into the following seven categories:

- **Mathematics Facts** (i.e., addition, subtraction, multiplication, and division problems involving integers up to 12, e.g., $12 + 12$; $12 - 12$; 12×12 ; $144/12$; the author's descriptions will help us to distinguish math facts from computation; e.g., "Addition Fact Fluency").
- **Computation** involving whole numbers (the author's descriptions will help us to distinguish computation from math facts).
- **Word Problems/Applications** (including complex multi-step problems; if computation or fractions are embedded within a word problem, categorize as "word problems"; examples include Jordan's Story Problems and Peabody Word Problems).
- **Concepts** [including fractions, ratios, decimals, geometry, measurement, pre-algebra (i.e., procedural manipulations to solve simple equations), algebra, and conceptual information such as equality].
- **Math-Specific General Achievement Tests** [and only if these are not broken down by domain such as "Computation subtest" e.g., the Test of Early Mathematics Ability (TEMA); Woodcock Johnson Achievement Tests].
- **Math-Outcome To-Be-Determined** (This is a temporary category for the rare instances when a math outcome cannot be assigned to another category. The evidence coordinator will consult with the panel chair.)
- **Identification** of Learning Disabilities, Tier Placement, and/or Special Education Pre-Referral Evaluation, Referral or Placement (e.g., percent of students referred for special education, percent of students scoring below a particular percentile, e.g., 20th percentile).

Baseline Characteristics for Equivalence within QEDs

Relevant to: Full Review

Protocol:

Authors need to demonstrate equivalence on **math achievement** at pretest. [If math achievement is equivalent and demographics (e.g., SES) are not, please note this on the SRG and discuss with the evidence coordinator.]

Study Ratings

Relevant to: Full Review

Protocol:

Ratings include: *Meets standards*, *Meets standards with reservations*, *Does not meet standards*, and *Uncertain* (*uncertain* will be used in cases where an author query would be necessary to determine rating).

Description of Intervention

Relevant to: Full Review

Protocol:

Descriptions of Interventions should be detailed. When possible, please note the following:

Intervention location/setting (e.g., general education classroom, pull-out intervention in resource room)

Person who delivers the intervention (e.g., general education teacher, math coach, paraprofessional, trained former teacher working on an hourly basis)

Instruction group size (i.e., one-on-one, small group, large group)

Group composition [e.g., homogenous grouping by ability level (“same ability”), heterogeneous groupings]

Duration (e.g., number of minutes per instructional session)

Frequency (e.g., twice a week)

Total number of lessons

Materials (e.g., manipulatives, visual representations, workbooks)

Scripted (please note if the curriculum delivered is scripted)

Mathematical content (e.g., procedural vs. conceptual mathematics or both; application of a “standard protocol intervention” vs. an intervention tailored to the individual student; core curriculum booster vs. a focus on critical/foundational/basic math skills)

Self-regulation (please note if a component of the intervention focuses on student motivation, self-regulation, or self-efficacy)

Any features that distinguish this intervention from the comparison condition (e.g., a slower pace, less teacher modeling, use of concrete materials or visuals to teach)

Issue: Missing Information

Relevant to: Full Review

Protocol:

Because of the tight timeline for practice guides, generally authors will not be contacted as part of the review process. If the **study is missing information necessary to make a rating, rate as *uncertain* and note the information that is missing.**

We will give the “benefit of the doubt” on attrition. (Even if giving the benefit of the doubt, please note what is missing.)

We will give the benefit of the doubt on missing measurement information (e.g., cannot tell if overaligned; even if giving the benefit of the doubt, please note what is missing).

We will NOT give the benefit of the doubt on baseline equivalence for QEDS.

Attrition Guidelines for the RTI-Math Practice Guide

(1) If attrition in a QED exceeds current guidelines (i.e., greater than 20% overall attrition or greater than 7% for differential attrition) the study can *meet with reservations* IF the authors demonstrate baseline equivalence of the analysis sample.

(2) If, in a QED, the analysis sample is clearly not equivalent at baseline, and the authors have not made statistical adjustments for baseline differences (e.g., adjusted means, ANCOVAS, gain

scores etc) than the study *does not meet standards* (even if attrition is within accepted guidelines).

(3) If a QED does not include information on the baseline equivalence of the analysis sample, but does demonstrate equivalence of the baseline sample, and attrition does NOT exceed current guidelines, then the rating is *uncertain*, provided there are no other concerns (an author query *might* be conducted to ask for information on the analysis sample at baseline).

(4) For RCTs, attrition that exceeds 20% overall or 7% differential (**regardless of demonstration of baseline equivalence of the analysis sample**) is downgraded to *meets with reservations* (if there are no other concerns).

Note that baseline equivalence is not demonstrated when either (1) the groups are significantly different at baseline or (2) the groups are more than a half SD different from one another.