

Efficacy Research Checklist

Based on the Common Guidelines for Education Research and Development

This checklist is a distillation of key points from the *Common Guidelines for Education Research and Development* regarding **Efficacy Research**. The *Guidelines*, developed by the Institute of Education Sciences at the U.S. Department of Education and the National Science Foundation, explains those agencies' shared expectations for education research and development. This checklist, created by EvaluATE, is intended to support use of the *Guidelines*, enabling users to quickly reference those that specifically relate to Foundational Research. As such, it provides an overview and orientation to the *Guidelines*. **It does not replace the Guidelines nor does it expand or elaborate on that report's content.** The checklist's content has been extracted (usually verbatim) from the full report. All checklist users are strongly encouraged to read the complete *Guidelines*, available from http://bit.ly/nsf-ies_guide.

Checklists on the other five types of research outlined in the *Guidelines* are available from www.evaluate.org/resources/cg_checklist/.

TYPE 4: EFFICACY RESEARCH to determine whether an intervention or strategy can improve outcomes under “ideal” conditions (e.g., with more implementation support, highly trained personnel, and/or more homogenous participants than is typical)

Justification

Policy and/or Practical Significance

- Describe the intervention to be tested
- Specify the practical problem the proposed intervention will address
- Justify the importance of the problem
- Describe how the intervention differs from other approaches to addressing the problem
- Explain why and how the intervention will be studied under ideal conditions rather than routine practice
- Identify the implementation settings and populations

Theoretical and Empirical Basis

- Justify the research through one or more of the following:
 - Empirical evidence of the promise of the intervention from a well-designed and implemented pilot study
 - Empirical evidence from an Early-Stage research study supporting the intervention’s theory of action
 - Evidence that the intervention is widely used even though its efficacy has not been established
 - If the study is a replication of a study with a different population:*
 - Evidence of positive impacts from a previous well-designed and implemented efficacy study
 - Justification for studying the intervention with a new population

Evidence

Project Outcomes

- Descriptions of the study goals, design and implementation, data collection and quality, and analysis and findings¹
- Reliable estimates of the intervention’s average impact
- If possible*, estimates for sample subgroups (e.g., by setting, population group, or cohort)
- Documentation of implementation of the intervention and the counterfactual condition in sufficient detail for readers to judge applicability of the findings
- Discussion of the implications of the findings for the intervention’s theory of action
- If favorable impacts are found*, description of the intervention’s organizational supports, tools, and procedures that were key features of implementation
- If no favorable impacts are found*, discussion of possible reasons

Research Plan*

- Identify and justify the following:
 - Study design used to estimate the intervention’s causal impact on the outcomes of interest
 - Key outcomes of interest and minimum size impact that would have policy or practical relevance

¹ As outlined in the What Works Clearinghouse Reporting Guide at <http://ies.ed.gov/ncee/wwc/documentsum.aspx?sid=235>

- Study setting(s) and target population(s)
- Sample, including the power it provides for detecting impact
- Data collection plan, including information about
 - Procedures
 - Measures
 - Evidence on and strategies for ensuring reliability and validity
 - Plans for collecting data on implementation, comparison group practices, and study context
- Analysis plan
- Reporting plan

*The Guidelines includes the following additional guidance regarding the design of Efficacy, Effectiveness, and Scale-Up Research:

- Use designs that will yield impact estimates with strong causal validity and that, for example, could meet What Works Clearinghouse standards without reservations (see <http://ies.ed.gov/ncee/wwc/>).
- Generally and when feasible, include random assignment to treatment and comparison groups.
- Use quasi-experimental designs, such as matched comparison groups or regression discontinuity designs only when there is direct compelling evidence demonstrating the implausibility of common threats to internal validity.
- Study sample size and allocation to condition should be such that the minimum true impact detectable size with 80 percent power and a 95 percent confidence interval is no larger than the minimum relevant size impact for policy or practice. If that is not the case, provide a rationale for conducting the study despite its not meeting this standard.
- Primary outcome measures should include student outcomes sensitive to the performance change the intervention is intended to bring about, student outcomes not strictly aligned with the intervention, and student outcomes of practical interest to educators and policymakers.
- Outcomes should be pre-specified, have been demonstrated as reliable and valid for the intended purposes, and based on data-collection methods that have been shown to yield reliable data.
- Measure the strength and qualities of implementation to address whether the intervention's impact estimates may be linked to how it was implemented.
- Measure comparison group practices and/or conditions to support a clear characterization of the contrast between the intervention and comparison condition. Identify the measures, their validity and reliability, and how data will be collected.
- Specify analytic models that reflect the sample design and maximize the likelihood of obtaining unbiased, efficient estimates of average impacts and the confidence intervals around those impacts.
- Describe additional analyses conducted to explore variability in the intervention's impacts and possible implications for the theory of change (e.g., subgroup analyses (expected in Effectiveness and in Scale-up Studies); exploration of co-variation in impact estimates and fidelity of implementation or intervention contrasts; and evidence of possible moderator and mediator effects).

External Feedback

- Subject the project to a series of external, critical reviews of its design and activities via one or more of the following strategies:
 - Peer review of the proposed project
 - Ongoing monitoring and review by the grant making agency's personnel
 - External review panels or advisory boards proposed by the project and/or the agency
 - Third-party evaluator
 - Peer review of publications and conference presentations resulting from the project

Ensure the external review is sufficiently independent and rigorous to influence the project's activities and improve the quality of its findings