Overview of Common Guidelines for Education Research and Development

Jointly developed by the Institute of Education Sciences at the U.S. Department of Education and the National Science Foundation

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Purpose of the Common Guidelines

• To explain the agencies’ shared:
  • expectations for education research and development
  • understanding of the purposes, justifications, and contributions of the various types of research
Six Types of Research

• Foundational Research
• Early-stage or Exploratory Research
• Design and Development Research

Studies of Impact

• Efficacy Research
• Effectiveness Research
• Scale-up Research
Key Elements of Each Research Type

• Purpose
• Justification/significance
• Evidence (Outcomes/Research plan)
• External feedback
The purpose of Foundational Research is to:
- advance the frontiers of education and learning;
- develop and refine theory and methodology; and
- provide fundamental knowledge about teaching and learning.

Foundational Research Studies may examine phenomena without establishing an explicit link to education outcomes.
Early-Stage or Exploratory Research

- Examines relationships among important constructs in education and learning
- Goal is to establish logical connections that may form the basis for future interventions or strategies intended to improve education outcomes
- Connections are usually correlational rather than causal
Design and Development Research

- Draws on existing theory and evidence to design and iteratively develop interventions/strategies
  - Includes testing individual components to provide feedback in the development process
- This research involves four components:
  - development of a solution;
  - creation of measures to assess implementation of the solutions;
  - collection of data on the feasibility of implementing the solution;
  - conducting a pilot study to examine the promise of generating the intended outcomes.
- Design and Development projects may have all components in a single project or in sequential projects.
Studies of Impact

Generate reliable estimates of the ability of a fully-developed intervention or strategy to achieve its intended purpose

- **Efficacy Research** tests impact under “ideal” conditions
- **Effectiveness Research** tests impact under conditions of routine practice
- **Scale-Up Research** examine effectiveness in a wide range of populations, contexts, and circumstances
## Important Features of Each Type of Research

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<th>How does this type of research contribute to the evidence base?</th>
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<td>How should policy and practical significance be demonstrated?</td>
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<td>What types of theoretical and/or empirical arguments should be made for conducting this study?</td>
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<td><strong>Outcomes</strong></td>
<td>What types of outcomes (theory and empirical evidence) should the project produce?</td>
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<td><strong>Research Plan</strong></td>
<td>What are the key features of a research design for this type of study?</td>
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<td>What are the hypotheses or research questions?</td>
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Important Features of Each Type of Research

External Feedback Plan

Series of external, critical reviews of project design and activities

Review activities may entail:

- peer review of proposed project
- external review panels or advisory boards
- third-party evaluator
- peer review of publications and conference presentations resulting from the project

Review should be sufficiently independent and rigorous to influence and improve quality of findings
Comparison, in brief: Justification (Early-Stage or Exploratory Research)

Policy and/or Practical Significance
• Describe the problem/issue of study focus
• Provide a rationale for studying the problem
• Explain how the research will generate important knowledge to inform development, improvement of education programs, policies, or practices

Theoretical and Empirical Basis
• Describe a strong theoretical or empirical rationale for the project, ideally with citations to evidence
Comparison, in brief: Justification

*(Design and Development Research)*

**Policy and/or Practical Significance**
- Specify the problem that will be addressed
- Justify importance of problem
- Describe how the intervention differs from existing practice
- Explain why the project has the potential to improve education outcomes

**Theoretical and Empirical Basis**
- Describe the theoretical or empirical justification
- Provide well-explicated theory of action or logic model for the intervention
Comparison, in brief: Justification

(Efficacy Research)

Policy and/or Practical Significance
• Describe the intervention to be tested
• Specify the problem the intervention will address
• Justify the importance of the problem
• Describe how the intervention differs from other approaches
• Explain why and how the intervention will be studied under ideal conditions rather than routine
• Identify the implementation settings and populations

Theoretical and Empirical Basis
Justify 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 study supporting the intervention’s theory of action
• Evidence of wide use of intervention even though its efficacy hasn’t been established
Comparison, in brief: Evidence
(Early-Stage or Exploratory Research)

Project Outcomes
• Association of malleable factors with education outcomes
• Findings that could serve as basis for future studies

Research Plan
• Define study’s key hypotheses or research questions
• Describe research design, demonstrate why it’s appropriate for the hypotheses
• Justify proposed context and sample for the study
• Describe data collection procedures and instruments
• Describe data analysis procedures
• Describe reporting plan
Comparison, in brief: Evidence (Design and Development Research)

Project Outcomes
• Fully developed version of the design-research
• Well specified theory of action
• Description of major design iteration and resulting evidence
• Pilot data on the intervention’s promise for generating intended education outcomes

Research Plan
• Describe method for developing the intervention to the point where it can be used by intended end users
• Describe methods for collecting evidence on the feasibility of implementation by end users
• Describe method for obtaining pilot data
Comparison, in brief: Evidence

*(Efficacy Research)*

### Project Outcomes
- Description of study goals, data collection and quality, and analysis and findings
- Reliable estimates of the intervention’s average impact
- Documentation of implementation of the intervention
- Discussion of the implications of the findings for the intervention’s theory of action

### Research Plan
Identify and justify:
- Study design
- Key outcomes of interest and minimum size impact
- Study setting(s) and target population(s)
- Data collection plans (procedures, measures, etc)
- Analysis and reporting plans
Knowledge Generation & Connection Among the Six Research Types

- Knowledge development is not linear (doesn’t flow from basic research to studies of effectiveness)
- Investigations can sometimes move directly from development of core knowledge to Scale-Up research (e.g., MOOCs)
- Individual studies may incorporate elements that cut across research types (a Design & Development Research project may incorporate a small-scale study to assess efficacy)
Implications for Decision-Making Within Each Agency

Guidelines will inform decision-making for agencies (individually and jointly) across different topic areas

- Analyze the developmental status of awards and progress within various portfolios
- Identify areas of education research and development needing additional resources/emphasis
- Encourage more and better research on the development, implementation, and scaling of new strategies and interventions
Implications for Peer Reviewers

Provide guidance regarding what high-quality research design looks like

- Gives reviewers a tool to assess the quality of the research design (for individual proposals and across a group of proposals)
- Support reviewers in their role as “critical friends” who offer actionable feedback to PIs
- Help ensure that agencies fund robust research and development efforts
Implications for Future Principal Investigators

Guidelines can help PIs conceptualize & communicate how the proposed research & development fits into a broader evidence-building agenda

- Suggest components to include, within a single proposal and a given type of research
- Identify important considerations in planning a project, including building the research team
- Establish expectations about needed improvements in how we—as a field—develop, conduct, and apply research and scale effective practices
Will these Guidelines preclude innovative projects?

No. The Guidelines are intended to help PIs in proposal preparation. The key point of the Guidelines is to ensure that projects are explicit about their research questions, methods, and analytic approaches in their proposals. These criteria should be relevant for all types of education R&D efforts.
Do the Guidelines preclude or privilege any research methodologies?

- No. The Guidelines do not preclude or favor any research methods, but they do underscore the importance of ensuring that the methods are well described, justified, and appropriate to the research questions that are posed.

- Qualitative and quantitative approaches may be used in all of the six research genres that are described in the Guidelines.
Reference