Continuous Improvement
Research in Education
(Topic 2 of 84.305H)

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Overview

• Overview of IES and its mission
• Continuous Improvement Research in Education
  – Purpose
  – Requirements
  – The project narrative
  – Other important sections of the application
• Preparing and submitting an application
Legislative Mission of IES

- Describe the condition and progress of education in the United States
- Identify education practices that improve academic achievement and access to education opportunities
- Evaluate the effectiveness of Federal and other education programs
IES Grant Programs: Research Objectives

• Develop or identify education interventions (practices, programs, policies, and approaches)
  – that enhance academic achievement
  – that can be widely deployed

• Identify what does not work and thereby encourage innovation and further research

• Understand the processes that underlie the effectiveness of education interventions and the variation in their effectiveness
IES seeks to...

- Encourage education researchers to develop partnerships with stakeholder groups to advance relevance of research and usability of its findings for day-to-day work of education practitioners and policymakers.
- Increase capacity of education policymakers and practitioners to use knowledge generated from high quality data analysis, research, and evaluation through wide variety of communication and outreach strategies.

(See http://ies.ed.gov/director/board/priorities.asp)
Partnerships and Collaborations Focused on Problems of Practice and Policy (84.305H)

- New Request for Applications (RFAs) to further promote research partnerships between research institutions and State and local education agencies (SEAs/LEAs)
- Contains 3 topics
  - Researcher-Practitioner Partnerships in Education Research
  - Continuous Improvement Research in Education
  - Evaluation of State & Local Education Programs & Policies
Continuous Improvement Research in Education: Purpose

• Promote joint research by partnerships of research institutions and SEAs/LEAs
  – Addresses an education issue or problem of key importance to an SEA/LEA
  – Directly contributes to solving problems faced by an SEA/LEA
Purpose

• **Implement, adapt, and revise** existing approach(es) to addressing the education issue or problem of concern to the SEA/LEA

• Pilot the revised approach to identify promise of evidence for its impact on student outcomes
Purpose

• Foster longer-term research partnerships

• Contribute to our understanding of how approaches can be adopted to address local conditions and wide implementation
Expected Products of the Grant

1. Description of the partnership as developed over the grant
2. Description of the education issue addressed by the partners
3. Description of the approach used by the partnership to address the education issue
4. Description of the approach after it has been implemented, adapted and revised
   - Identification of the changes made in the approach, changes made in the education system, and reason for those changes
5. Description of the process used to adapt/revise the approaches along with the data summaries upon which revisions were based
Expected Products of the Grant

6. Results from pilot analysis of the approach regarding evidence of the promise of the approach to improve student outcomes
7. Determination as to whether the approach is ready for a full evaluation or requires further development
8. Recommendations for how the partnership could be maintained over the longer term
9. Specific and general lessons from the revisions to the approach and changes made in the education system that improved the approach and its implementation
10. Lessons learned from the joint development work performed the partnership that could be used by other partnerships
Specific Requirements: Focus on Student Outcomes

• IES funds research to improve the quality of education for all students through advancing the understanding of and practices for teaching, learning, and organizing education systems

• All research must address education outcomes of students
  – Academic outcomes
  – Social and behavioral competencies that support student success in school
Specific Requirements: Student Population

• Students from prekindergarten through postsecondary and adult education
  – Typically developing students
  – Students with disabilities or at risk for disabilities
    • Specific requirements for identifying students at risk for disabilities status
    • (see http://ies.ed.gov/ncser/definition.asp)
### Ultimate Outcomes of Interest: Student Outcomes

<table>
<thead>
<tr>
<th>Grade</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prekindergarten</td>
<td>School readiness (e.g., pre-reading, language, vocabulary, early math and science knowledge, social and behavioral competencies)</td>
</tr>
<tr>
<td>Kindergarten –</td>
<td>Learning, achievement, and higher-order thinking in reading, writing, mathematics, and science; progress through the education system (e.g., course and grade completion or retention, high school graduation, and dropout); social skills, attitudes, and behaviors that support learning in school</td>
</tr>
<tr>
<td>Grade 12</td>
<td></td>
</tr>
</tbody>
</table>
# Ultimate Outcomes of Interest: Student Outcomes

<table>
<thead>
<tr>
<th>Grade</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Postsecondary</strong> (Grades 13 – 16)</td>
<td>Access to, persistence in, progress through, and completion of postsecondary education; for students in developmental programs, additional outcomes include achievement in reading, writing, English language proficiency, and mathematics</td>
</tr>
<tr>
<td><strong>Adult Education</strong> (Adult Basic Education, Adult Secondary Education, Adult ESL, and GED preparation)</td>
<td>Student achievement in reading, writing, and mathematics; access to, persistence in, progress through, and completion of adult education programs</td>
</tr>
</tbody>
</table>
Education Issue

• Applicants may propose to address any education issue of priority to LEA/SEA
• The Institute is especially interested in...
  – School safety
  – Social skills, attitudes, and behaviors that contribute to student academic success
  – Implementation of the Common Core State Standards
• The peer review process will not penalize applications addressing other education issues
Specific Requirements: Applications Must Be from a Partnership

- Partnership must be well-established
  - Record of joint work for at least 1 year
- Applications must include at least one Principal Investigator (PI) from a research institution and at least one PI from SEA/LEA
  - **PI from research institution:** Must have the ability and capacity to conduct scientifically valid research and expertise in the education issue to be addressed
  - **PI from State or local education agency:** Must have decision-making authority for the issue within his or her agency
Specific Requirements: SEA or LEA Partner

• State education agencies
  – Examples: Education agencies, departments, boards, commissions
  – Oversee early learning, elementary, secondary, postsecondary/higher, and/or adult education
  – Include education agencies and tribal education agencies in U.S. territories
Specific Requirements: SEA or LEA Partner

• Local education agencies which are primarily public school districts
• Community college districts
• State and city postsecondary systems
  – *If there is a State or city higher education agency that oversees the postsecondary system*, include them as an agency partner
  – *If there is no State or city education agency that oversees the postsecondary system*, the system can apply as the sole agency partner
  – A postsecondary system that applies as an education agency partner cannot also serve as the research institution partner in the same project
Additional Partners

• Partnerships may include more than one SEA/LEA if they share similarities and interests
• Non-education State and local agencies may be partners as long as an education agency is also a partner
• Partnerships may include more than one research institution if they have shared interests and will make unique contributions
• Partnerships may include other non-research organizations (e.g., issue-oriented or stakeholder groups) that will contribute to the partnership and its work
The Project Narrative

• Significance
• Research Plan
• Personnel
• Resources
In the Significance section, clearly describe...

- The strength of the well-established partnership
- The research aims of the project
  - Education issue to be examined and its importance to the education agency
  - Approach(es) to be taken to address the education issue and evidence of its promise
  - Importance of this work to the partnership, other education agencies, and the field of education research
Significance: The Partnership

• **Describe the partners**
  – The research institution and the education agency
  – Any other members of the partnership
  – Partners’ common interests and complementary abilities
  – How all members contribute to and benefit from the partnership
Significance: The Partnership

• Provide evidence that the partnership is well-established
  – At a minimum, the partnership must have carried out 1 year of joint work
  – Document that such work has been done and identify products of the work
  – Provide further evidence of your capacity to work together
  – Describe the partnership infrastructure in place and any additional infrastructure that will be put in place for this project
Significance: The Partnership

- Describe education agency capacity building for research and development
  - Examples: Obtain data, improve implementation, development work, analysis of data, apply research results to decision making
  - Expectations for capacity building depend on the initial capacity of the SEA/LEA
  - The Institute intends that education agencies learn to implement a continuous improvement approach (with or without an ongoing partnership) and incorporate research results into their decision making
Significance: Research Aims

• Describe the education issue to be addressed
  – Justify its importance to the education agency
  – Discuss how its resolution will contribute to improving specific student outcomes (theoretically and empirically)
  – Discuss its importance to other education agencies, policymakers, and education research (of secondary importance)
Significance: Research Aims

• Describe current practice in the education agency
  – Describe how the education agency is currently addressing the education issue
  – Discuss why current practice is not satisfactory
Significance: Research Aims

• Describe proposed approach to the education issue
  – Describe proposed approach(es) to be implemented, adapted, and revised
  – Contrast with current practice
  – Describe current status of approach within the education agency
The Approach

• Purposefully not explicitly detailed in the RFA
• Should fall along a continuum
  – From a set of related strategies to address a problem
  – To a fully developed intervention
• Should have a compelling theory of change on how it will address the education issues and improve student outcomes
• May change substantially over the project or only slightly as you adapt it to local conditions
• Can be implemented early in the first year of the project
Significance: Research Aims

• Describe the education system
  – Describe the education system(s) where implementation will occur (e.g., classroom, school, district, multiple districts, state)
  – Discuss why the approach will need adaptation and revision for successful implementation
  – Discuss how the system(s) will need to change to support successful implementation
Significance: Research Aims

• Describe the initial theory of change for the proposed approach
  – Theory of change is the process through which the key components will work within the education system to improve student outcomes
  – Provide any empirical evidence for the theory of change

• Discuss the expected practical importance of the approach
  – Discuss how much of the education issue the approach can be expected to resolve
The Project Narrative

• Significance
• **Research Plan**
• Personnel
• Resources
In the Research Plan, clearly describe...

• The process to adapt and revise the approach using a short-cycle approach
• The changes needed in the education system to support implementation
• The method for assessing the promise of the approach for improving student outcomes
• The method for tracking the project’s progress and determining its success
Research Plan

• **Describe the Continuous Improvement Process**
  
  – Describe how the approach will be initially implemented in the education system
  
  – Describe how the approach will be adapted and revised to improve its usability, feasibility, and outcomes through a short-cycle approach
The Short-Cycle Approach

• Adaptation and revision process using a series of cycles of implementation, measurement, and revision

• Relies on ongoing measurement with quick release and analysis of data to inform revision

• Measures are to address...
  – Usability: Can intended user physically implement the approach as well as understand it and be willing to use it?
  – Feasibility: Is the approach usable within the constraints of the education system?
  – Outcomes: Does the approach lead to the expected intermediate and final outcomes?
• Describe the Continuous Improvement Process
  – Describe measures to be used
  – Describe data collection processes to collect these measures
  – Describe analysis to produce the measures
  – Describe interpretation of measures
  – Describe how results will be used to revise approach
  – Describe how the revised approach will be implemented
Research Plan: The Pilot Study of Prototype Approach

• Should be examined in Year 4
  – Fidelity of implementation
  – Promise of evidence to improve student outcomes

• Is not expected to be efficacy study
  – Experiment (possible at student- or classroom-level)
  – Quasi-experimental study using comparison groups with additional adjustments
  – Single-case study meeting WWC design standard
Research Plan: The Pilot Study of Prototype Approach

- Can use data collection methods established for continuous improvement process and administrative data
  - Describe the design of the pilot study, data to be collected, analyses, and criteria to be used to determine if evidence of promise is found
- Can contribute to the revision of the approach
  - Also, the short-cycle approach can continue outside of the pilot study
Research Plan: Tracking Partnership’s Progress & Determining Its Success

• Describe the plan to track progress and success
  – Identify potential weaknesses of the partnership and strategies for addressing them
  – Describe how continuous improvement process will be monitored to ensure it is functioning
  – Describe how pilot study will be overseen
  – Describe how improvements in capacity of education agency will be tracked, including ability of agency to take the lead in future continuous improvement processes
  – Describe how the success of the partnership will be examined
EXAMPLE:
Math Curriculum for Middle School Grades

• The approach implements a math curriculum based on National Council of Teachers of Mathematics (NCTM) recommendations for Mathematics Teaching in the Middle School and the following elements:
  – Professional development sessions with teachers
  – Instructional coaches
  – Classroom observation (video and in-person)
EXAMPLE Research Plan: Initial Approach & Measures

• The initial form of the approach would include elements with detailed descriptions:
  – PD sessions: scheduling, subject matter and pedagogical strategies
  – Instructional coaches: location, activities and supervision

• The measurement/analysis strategy should facilitate short-cycle revisions of the approach
  – Describe frequency and modes of classroom observations, and method for coding them to facilitate quick-release analysis

• Measures of usability and feasibility could come from relatively frequent surveys of teachers and principals
  – Assess ease or difficulty teachers are having with the curriculum
  – Assess feasibility and perceived effectiveness of the PD sessions and coaching strategies
EXAMPLE Research Plan: Measures

• Student outcomes differ by stage of implementation
  – Early-stage outcome measures—which facilitate short-cycle revisions—could include teacher perceptions of student progress and/or formative assessments of content knowledge.
  • The application should discuss relations between these proximate measures and longer-term outcome measures, as well as how and when these measures will be collected.
  – Pilot-stage outcome measures could include grades, achievement test scores, and course completions.
EXAMPLE Research Plan:
The Continuous Improvement Process

• Describe how and when the measures will be assessed and interpreted so as to facilitate short-cycle revisions to the approach for implementing the curriculum
  – From classroom observations, surveys, and early-stage outcome data
• Be specific as to the number of iterations (revisions) that will take place prior to the pilot study
• Discuss how the approach will be formalized as a prototype for use during the pilot study
  – Through documentation, school- or district-level guidelines, etc.
EXAMPLE Research Plan: The Pilot Study

• The pilot study could take several forms
  – Time-series analysis comparing student outcomes in pilot schools to outcomes for students in similar schools not receiving the prototype
    • Using adjustments for student and school characteristics
  – Experiment in which students are randomly assigned to different conditions
    • E.g., the approach described here versus another approach within the district
  – Single-case study comparing student outcomes during the pilot year to the same outcomes from previous years, for students in the same school (or schools)
EXAMPLE Research Plan: Tracking Partnership Progress

• Periodic surveys and/or interviews of partners could be used to identify weaknesses in communication, follow-through, etc.

• The co-PIs could have a strategy for reviewing how collected measures are utilized to inform iterative improvement of the curriculum.

• The research plan would describe the role of the practitioner and research partner in monitoring the pilot study.

• The research plan could possibly include a framework for a third-party to evaluate improvements in agency capacity and the success of the partnership.
The Project Narrative

- Significance
- Research Plan
- Personnel
- Resources
You **must identify all key personnel on the project team including the Principal Investigator (PI) and the Co-PI(s)**

- The PI may be from either the research institution or the education agency, but there must also be a Co-PI from each of the other members of the partnership.
- The PI or Co-PI from the education agency must have decision-making authority for the issue being examined.
Discuss how the research and program expertise of the key personnel together reflect the content and methodological foci of the partnership

- Qualifications and how qualifications contribute to...
  - Maintenance of the partnership
  - Development of the approach to be carried out by the partnership
  - Pilot study on the promise of the approach to improve student outcomes
  - Capacity of the partnership and the education agency (on its own) for future research

- Roles and responsibilities within the partnership

- Percent of time and calendar months per year to be devoted to the partnership

- Previous experience working in this type of partnership and outcomes from that work
Resources

• Describe the institutional resources of all the institutions involved in the partnership and how these resources will contribute to building the partnership and to the research
  – Describe the partnership’s management structure
  – If individual schools are taking part, they should document their involvement (e.g., Letters of Agreement in Appendix C)
  – If secondary data is being analyzed, the organization holding that data should document their willingness to provide the data (e.g., Letters of Agreement in Appendix C)
  – If school staff are taking part (e.g., through surveys, observations, logs), discuss how their cooperation will be obtained and their current knowledge of the project
Ensuring Your Responsiveness to Substantive Requirements of the Research Narrative

• Significance
  – Description of institutions in partnership (with Letters of Agreement from each in Appendix C)
    • Meeting requirement that partnership must have carried out joint research for at least 1 year
  – Description of education issue/problem to be researched by partnership including links to both student achievement and potential decisions to be made by the education agency partner
  – Description of education system in which approach is to be adapted/revised
  – Description of approach and how it is intended to address the education issue/problem
  – Source for the approach (i.e., whether education agency has already obtained materials needed or what non-grant resources it will use to obtain them)

• Research Plan
  – Adaptation and revision plan for approach using short-cycle continuous improvement process
  – Pilot study
  – Plan for tracking progress of both partnership and research proposed
  – Plan for examining success of partnership

• Personnel
  – Identification of key personnel and how they meet Personnel requirements

• Overall
  – Timeframe that falls within maximum project length of 4 years and budget that falls within maximum award of $2.5 million
Other Important Sections of the Application

• Appendix A
• Appendix B
• Appendix C
• Budget & Budget Narrative
Appendix A

Page Limit: 15

• *If you are resubmitting an application*, use up to 3 pages to discuss how you responded to reviewer comments.

• Figures, charts, or tables that supplement the project narrative

• Examples of measures to be used in the short-cycle process
  – E.g., tests, surveys, observation and interview protocols
You may include examples of materials that are part of the approach you intend to implement, adapt, and revise.

– Curriculum material
– Computer screenshots
– Assessment items
– Other materials
Appendix C

No Page Limit

- Appendix C contains letters of agreement from all the research partners
  - Letters should clearly set out the organization’s expected role in the partnership and their commitments to the project
  - Similar letters from any consultants and schools taking part should be included
  - Letters from holders of data should make clear that the data described in the application will be provided for the proposed use by the project
Budget & Budget Narrative

- The maximum award is $2.5 million
- The maximum project length is 4 years
- The size of the award depends on the scope of the project
- Include a detailed budget form (SF 424) AND a narrative that links the activities, personnel, etc. from the Project Narrative to the funds requested
## Important Dates & Deadlines

<table>
<thead>
<tr>
<th>Application Deadline</th>
<th>Letter of Intent Due Date</th>
<th>Application Package Posted</th>
<th>Start Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept 4, 2013 4:30:00 PM DC Time</td>
<td>June 6, 2013</td>
<td>June 6, 2013</td>
<td>July 1, 2014 to Sept 1, 2014</td>
</tr>
</tbody>
</table>
Information Sources

• Request for Applications

• Letter of Intent

• IES Grants.gov Application Submission Guide

• Application Package
  – [www.grants.gov](http://www.grants.gov)
  – Available June 6, 2013
  – Click on “Find Grant Opportunities”, then “Basic Search”, then type in “84.305” under CFDA Number, then select “84.305H”.

• Program Officers
  – James.Benson@ed.gov
  – Amanda.Hoffman@ed.gov (primarily for projects addressing students with disabilities)
Peer Review
(Standards & Review Office)

• Compliance screening for format requirements
• Responsiveness screening for program requirements
• Assigned to review panel
  – 2-3 reviewers (substantive & methodological)
  – If scores are strong enough, application is reviewed by full panel
    • Many panelists will be generalists to your topic
    • There will an expert in every procedure you use
  – Panel provides an overall score plus scores on Significance, Research Plan, Personnel, and Resources
Notification

• All applicants will receive e-mail notification that the following information is available via the Applicant Notification System (ANS):
  • Status of award
  • Reviewer summary statement
• If you are not granted an award the first time, consider resubmitting and talking with your Program Officer
For More Information

http://ies.ed.gov/funding

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