RESEARCH ON EDUCATION AND LEARNING (REAL)

Program Solicitation: NSF 13-604

Division of Research on Learning in Formal and Informal Settings

Important Dates

Letters of Intent (optional)

November 13, 2013*

Full Proposals

January 10, 2014

*As specified in the October 22, 2013 Revised Proposal Due Date Listing, the LOI deadline published in the solicitation was subsequently revised due to the Federal government shutdown.

Goals of the REAL Program

REAL supports research that informs efforts to:

a) understand,

b) build theory to explain, and

c) suggest interventions & innovations to address

persistent challenges in STEM interest, education, learning, and participation.

Scope of the REAL Program

Collectively, REAL projects explore all aspects of education research…

…from foundational knowledge to improvements in STEM learning and learning contexts

…both formal and informal

…from childhood through adulthood

…for all groups

…from the earliest developmental stages of life through participation in the workforce, resulting in increased public understanding of science and engineering

Scope of the REAL Program *(continued)*

REAL represents the substantive foci of three previous EHR programs:

- Research and Evaluation on Education in Science and Engineering (REESE)
- Research in Disabilities Education (RDE)
- Research on Gender in Science and Engineering (GSE)

REAL Projects

- Address basic, foundational research questions about STEM learning and/or education
- Use rigorous standards for theory, methods and analysis
- Are deeply rooted in STEM content and knowledge-building practices

REAL Projects *(continued)*

- Develop innovative methods, measures and models
- Investigate education phenomena to understand what works, for whom, why, and under what conditions
- Explore lessons that can be learned in context or through practice (e.g., via implementation research) to enhance basic knowledge and theoretical findings

REAL Research Areas

1. Research on Human Learning in STEM
2. Research on Learning in STEM Learning Environments
3. Broadening Participation Research
   a) Research in Disabilities Education
   b) Research on Gender in S&E
4. Special Emphases
   a) Assessment
   b) Undergraduate learning
   c) Technology

Research on Gender in Science and Engineering (GSE)

- Supports efforts to understand and address gender-based differences
- All areas of social and education research encouraged
- Projects may undertake foundational or implementation research
- Especially interested in Syntheses

Research on Gender in Science and Engineering (GSE)

- Topic areas of particular interest for research and syntheses:
  - Gender, STEM skills and the changing nature of work
  - Educational technology and gender
  - Educational transitions and STEM pathways
  - Effective diffusion of gender-equitable practices in STEM

Research on Gender in Science and Engineering (GSE)

- Topic areas of particular interest for research and syntheses:
  - Intersectionality
  - Women with disabilities in STEM
  - Minority males in STEM

Elements of REAL Proposals

- Linkages to theory and extant research
- Research plan
- Contributions to implementation (where applicable)
- Contributions to knowledge
- Communication strategy
- Data management plan
- Objective external feedback

Eligible REAL Proposal Types

- Early Stage Research
- Middle Stage Research
- Later Stage Research
- Fostering Interdisciplinary Research in Education (FIRE)
- Synthesis
- Conference and Workshop

Award Sizes and Duration

Anticipated number of awards: 45 to 52

Anticipated funds: $51,000,000 for new awards

- Early-stage research (~10 awards)
  - $500,000, max 3 years
- Middle-stage research (~20 awards)
  - $1.5 million, max 3 years
- Later-stage research (~8)
  - $2.5 million, max 5 years

Award Sizes and Duration

- FIRE (~6)
  - $500K, max 3 years
- Synthesis (~10)
  - $300K, max 2 years
- Conferences and workshops (~10)
  - $75,000

Questions

Proposal Preparation

Resources

- **REAL program page on NSF website**
- **REAL Solicitation (NSF 13-604)**
- **NSF Grant Proposal Guide (GPG) (NSF 13-1)**
- ***Common Guidelines for Education Research and Development* (NSF 13-126)**
- **FAQs on the *Common Guidelines* (NSF 13-127)**

What do we mean by "Common Guidelines"?

A cross-agency framework that describes:

- Broad types of research and development
- The expected ***purposes, justifications,*** and ***contributions*** of various types of research to knowledge generation about interventions and strategies for improving learning

Types of Studies

- Foundational research and development studies
  - Generate fundamental knowledge that may contribute to teaching and/or learning
- Early stage/exploratory studies
  - Examine relationships among constructs to establish logical connections
- Design and development studies
  - Design and iteratively develop particular interventions (programs, policies, practices or technologies); pilot test

Types of Studies *(continued)*

IMPACT STUDIES

- Efficacy Studies
  - Estimate the impacts of strategies under optimal conditions of implementation
- Effectiveness Studies
  - Examine implementation and estimate impacts similar to routine practice but still on a limited scale
- Scale-up Studies
  - Explore implementation and estimates impacts under conditions that prevail under wide-scale adoption

Proposal Preparation

(continued)

Project Summary

- **First Sentence**
  - Type of Proposal – early-, middle-, later-stage, FIRE, synthesis, workshop
  - Main research area – learning, learning environments, broadening participation, special emphasis
- **First Paragraph**
  - Justification
  - Work proposed
- **Intellectual Merit and Broader Impacts**
  - Must include separate statements on each of these two NSB criteria

Goals and Purposes

- Why is this project important?
- How will the findings lead to potential innovations in STEM learning and/or education?
- How will it advance knowledge?
- What are the anticipated outcomes and/or products of this project?
- How might these products or findings be useful?

What Have You and Others Done?

- Describe the theoretical and research basis on which the proposal is based.
- Discuss how the proposal is innovative and different from similar research and development projects.
- If you have been funded by NSF, provide evidence about the **effectiveness** and **impact** of that work.

How Are You Going To Do It?

- State clear research questions or hypotheses that the project will test.
- Describe the plan for data collection
- Describe the research methods, including data analysis plans, sampling plan, and assessments.
- Briefly describe the work plan and timeline.

Who Will do The Work?

- Briefly describe the expertise of the persons included in the proposal and why they are needed
- Upload two page bios for all senior personnel and

External Feedback Plan

A proposal must describe appropriate project-specific external feedback process

- May include an external review panel or advisory board or a third-party evaluator
- Must independent and rigorous

Communication Strategy

- Plan and specific strategies for **Dissemination** of products and/or findings to researchers, policy makers, and practitioners
- Requirement to share design, findings, and products with any future REAL Resource Network

Supplementary Documents

- Data Management Plan
- Post Doc Mentoring Plan
- Brief letters of commitment or cooperation*
- NO OTHER DOCUMENTS

*be careful not to include attachments to the letters

Budget

- Should be consistent with level of work – you do not have to request the maximum!
- Two months salary: No more than two months of salary for senior personnel with academic positions on all NSF grants unless justified
- Indirect cost rates: Set by the institution and auditors and is non-negotiable.
- No cost sharing

Reasons for Return Without Review

- Violation of formatting rules of the Grant Proposal Guide (e.g. font, page length etc)
- Failure to address specifically intellectual merit and broader impact in the project summary and description
- Unauthorized documents/data in the appendix or supplementary document section.
- No post doc plan if post docs are included on budget
- No data management plan

Proposal Review Process

- Proposals are reviewed in panels composed of a range of external experts (e.g. educational researchers, content experts, teachers, developers)
- Each proposal will have a minimum of 3 reviews (but probably more)
- Proposals may be sent out to other experts for ad hoc reviews
- Each reviewer rates each proposal as Excellent, Very Good, Good, Fair or Poor

Proposal Review Process

- Proposals are discussed in a panel
- The panel writes a summary of the reviews and places the proposal in one of three categories: high competitive, competitive or non-competitive
- All elements of the review are advisory to NSF

Review Criteria

- All proposals are reviewed under two criteria: Intellectual Merit and Broader Impact

1. What is the potential for the proposed activity to:
   a. advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
   b. benefit society or advance desired societal outcomes (Broader Impacts)?
2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team, or institution to conduct the proposed activities?
5. Are there adequate resources available to the PI (either at the home institution or through collaborations) to carry out the proposed activities?

For Further Information

- For RDE inquiries:
  - Mark Leddy (mleddy@nsf.gov)
- For GSE inquiries:
  - Jolene Jesse (jjesse@nsf.gov)
- For other inquiries:DRLREAL@nsf.gov
- Send a one-page description of your ideas with your e-mail