STEM Learning and Research (STELAR) Center @ Education Development Center

NSF ITEST Solicitation Webinar

Thursday, June 16th 2016









Who We Are

- STEM Learning & Research Center (STELAR) at Education Development Center, Waltham, MA
- Supporting the program and its grantees since 2003
- Available to assist considering submitting an ITEST proposal







Find Resources on STELAR Website

http://stelar.edc.org/

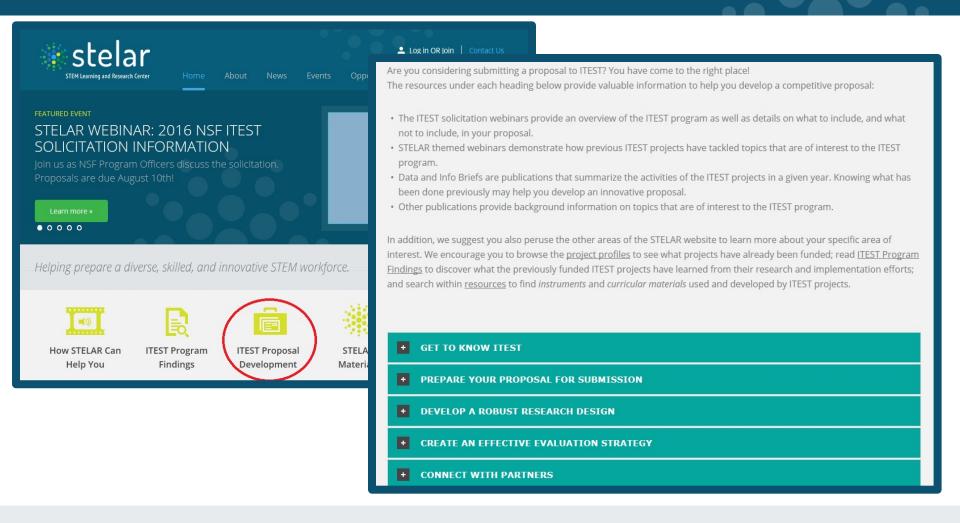








Get Ideas for Designing your Proposal

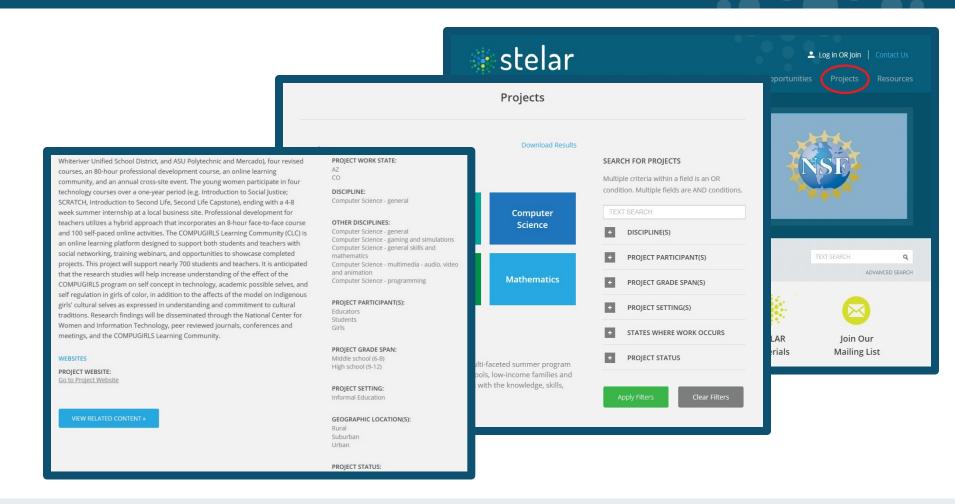








Browse Project Profiles

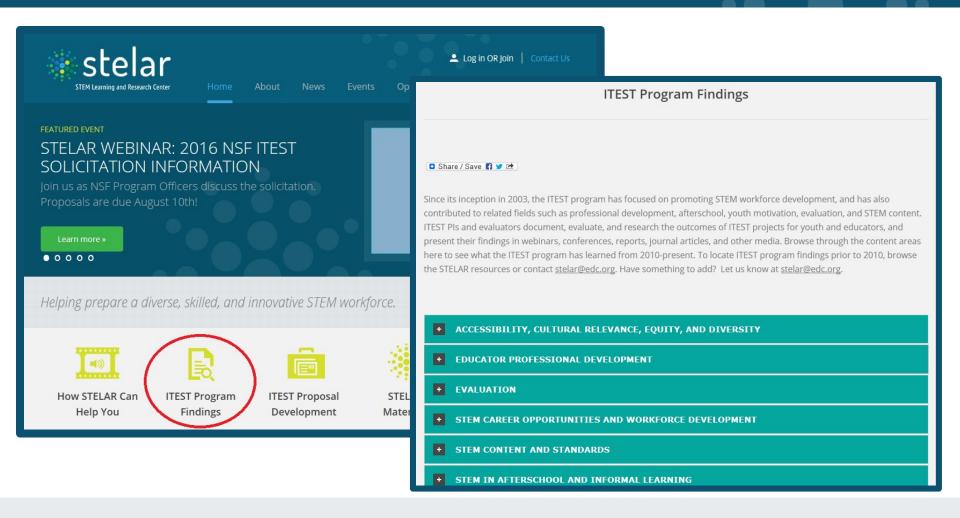








Read ITEST Program Findings

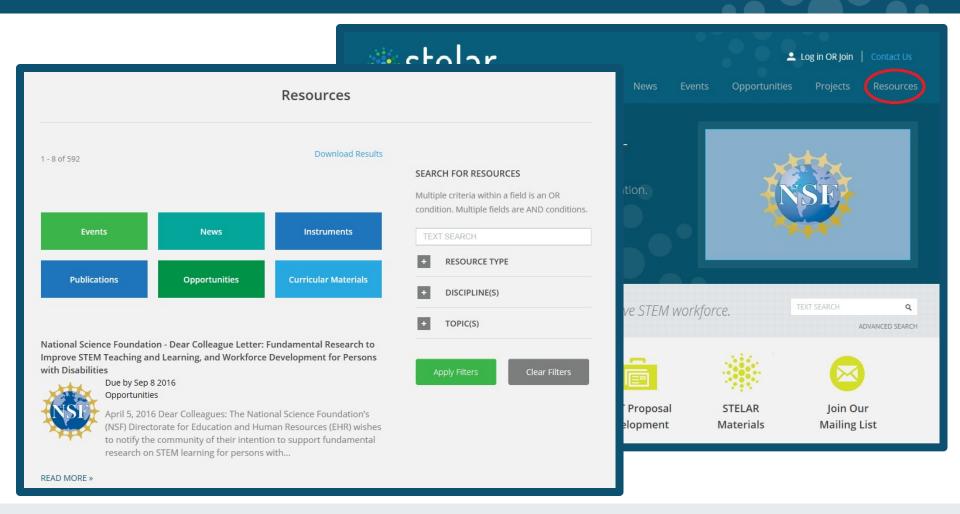








Resource Library – Curricula & Instruments









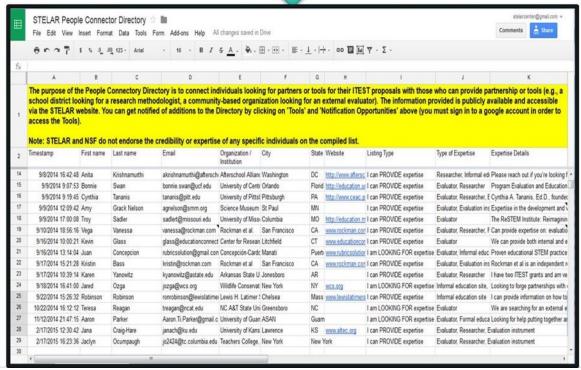
Connect with others via the People Connector

http://stelar.edc.org/opportunities/people-connector-directory-itest-proposals

People Connector Form

People Connector Directory











STELAR is on Social Media – Stay in Touch!

Contact us: stelar@edc.org

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Division of Research on Learning in Formal and Informal Settings

Program Solicitation: NSF 15-599

Proposals Due August 10, 2016

Changes For This Solicitation

- Clarification of expectations for research plans and project evaluation.
- Addition of solicitation specific review criteria related to broadening participation.

Note: No new proposals for the ITEST resource center will be considered.

Aim of the ITEST Program

Ensure a high-quality STEM workforce by supporting projects that:

- Increase student awareness of career opportunities in STEM and related fields.
- Motivate students to pursue appropriate educational pathways to STEM-related careers.
- Provide technology-rich experiences that develop disciplinary knowledge, practices, and non-cognitive skills needed in STEM fields.

STEM-Related Workforce Fields

- Traditional STEM Disciplines
- Information and Communications Technology (ICT)
- Computing, Computer Sciences, Data Analytics, and related fields.
- Professionals at all levels, including technicians, technologists, scientists, engineers, computer scientists, and mathematicians.

ITEST Projects...

- Must involve students.
- Are informed by relevant research.
- Will focus on workforce development for youth or school-to-work transitions.
- Will conduct foundational or design-based research of strategies, conditions and contexts that improve student STEM learning pathways and STEM-focused career preparations and mentorships.
- Must align with one or more guiding questions in the solicitation.

ITEST is particularly interested in:

- Broadening participation of students from groups underrepresented in STEM-related education and career domains.
- Projects that examine various forms of mentorship or the effectiveness of adult volunteers with relevant disciplinary expertise.
- Projects that improve students' critical thinking skills that transfer across disciplines and into career settings.
- Projects that directly involve students with business and industry through partnerships.

"Encouraged" are Projects that...

- Bring together researchers in STEM education, STEM disciplines, career development, psychology, sociology, anthropology, and related fields.
- Engage students in use of cutting-edge technological tools, the computer sciences, or innovative applications of technology for work-based or problembased learning.

Two Types of Projects Supported

Strategies projects that address the creation and implementation of innovative workforcerelated activities or programs.

- ➤ Awards for up to \$1.2M for projects lasting up to 3 years.
- > Approximately 15-20 projects to be supported.

SPrEaD (Successful **Pr**oject **E**xpansion **a**nd **D**issemination) projects that support the wider and broader dissemination and examination of innovative strategies.

- > Awards for up to \$2M for projects lasting 3-5 years.
- > Approximately 5-10 projects to be supported.

Projects must align with one or more of the guiding questions listed in the solicitation.

- Experiences that foster student competency, motivation, or persistence to pursue a STEMrelated career.
- Instructional and Curricular Models
- Roles of business and workforce members
- Strategies for parents, mentors, & caregivers
- Strategies for principals, counselors, & other school administrators
- Engaging diverse underrepresented populations

Questions?

All proposals should...

- Draw on existing theory and evidence to design and develop strategies.
- Describe the intervention/learning environment
- Describe the questions, instruments, methods, and analyses to be used to study the effects of the strategies.
- Describe how the project will collect and interpret evidence that the strategies were implemented as planned and goals achieved [project evaluation].

Strategies projects...

- Can include pilot testing to determine if the new strategies lead to desired outcomes.
- Are encouraged to expand and extend our notions of learning environments/where learning can take place.
- Are encouraged to develop relevant partnerships with schools, colleges, informal learning institutions, businesses, government labs, and community-based organizations.

Project Expansion and Dissemination (SPrEaD) Projects

- Study innovative strategies across a wider range of contexts and settings.
- SPrEaD projects document factors that may enhance, moderate, or constrain the effects of strategies designed to enhance student knowledge or disposition toward STEM-related education pathways or careers.

SPrEaD proposals must...

- Describe the innovation and the contexts and conditions for broadening and scaling.
- Present evidence for the feasibility of impacts.
- Explain how the proposed project builds on previous implementations.
- Identify anticipated contributions to knowledge.
- Present a study design capable of generating robust evidence of the strategy's potential.
- Include plans to document fidelity of implementation.
- Involve a partner not previously involved.

Additional Solicitation Specific Review Criteria

In addition to considering the two general Merit Review Criteria, reviewers will also be asked to consider the following three questions relating to broadening participation when reviewing Strategies and SPrEaD proposals:

- Does the proposal include explicit strategies for recruiting and selecting participants from identified groups currently underrepresented in STEM professions, careers, or education pathways?
- Does the proposal identify the specific needs of the underrepresented groups to be served, and does it include specific plans or strategies for addressing or accommodating the particular needs of participants of the identified underrepresented groups?
- Do the planned activities of the proposed project include explicit attention to strategies appropriate to participants' experiences for promoting awareness, interest, or readiness for STEM careers or STEM education pathways?

Resources for Proposal Preparation

- ITEST Program Webpage: <u>http://www.nsf.gov/funding/pgm_summ.jsp?pims_id</u> <u>=5467&orq=DRL&from=home</u>
- ITEST Solicitation:
 http://www.nsf.gov/publications/pub_summ.jsp?WT.
 z_pims_id=5467&ods_key=nsf15599
- STEM Learning and Research Center (STELAR): http://stelar.edc.org
- Grant Proposal Guide:
 http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg

Common Guidelines for Education Research and Development

- Potential PIs and grant writers are encouraged to use the information in the Common Guidelines for Educational Research and Development and the set of NSF FAQs regarding them to help in the preparation of proposals
- The section on "Foundational, Early Stage or Exploratory, and Design and Development Studies" is most relevant to this solicitation.

What are the Common Guidelines?

 NSF 13-126 - Joint effort between NSF and the Institute for Education Sciences at the U.S. Department of Education

http://www.nsf.gov/pubs/2013/nsf13126/ nsf13126.pdf

NSF 13-127 - Set of FAQs

http://www.nsf.gov/pubs/2013/nsf13127/nsf13127.jsp

Questions?

Proposal preparation

Project Summary Suggestions

- First Sentence
 - Type of Proposal Strategies or SPrEaD
- Second Sentence
 - STEM or STEM-related areas of emphasis
 - Grade or age level(s) addressed
- The strategy to be designed, implemented, and evaluated.
- Intellectual Merit and Broader Impacts
 - Must include separate statements on each of these two NSB criteria.

Note: The Project Summary is used to group proposals, so should be "descriptive" rather than "persuasive".

Project Description Should Include...

- Project overview & succinct rationale
- Project goals and objectives
- Summary of effectiveness and impact of prior support
- Explanation of principles or theoretical framework that guided the project design, informed by the literature
- Detailed work plan with a timeline
- Research plan
- Anticipated results
- Independent evaluation process
- Dissemination plan
- Qualifications of key personnel who will be coordinating the project

Things to Consider Relating to Goals and Objectives

- Why is this project important?
- How will the project attract students or prepare them for the STEM workforce?
- How will it advance knowledge?
- What are the anticipated outcomes and/or products of this project?
- How might these products or findings be useful on a broader scale?

What Have You and Others Done? What is the context?

- 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 impacts of that work (Intellectual Merit & Broader Impacts).

How Are You Going To Do It?

- State clear research questions or hypotheses that the project will test.
- Describe the plan for developing, adapting or implementing the proposed innovative strategy.
- 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 on the proposal and why they are needed:
 - Education researchers and evaluators
 - Teachers
 - STEM-related content experts
- Upload two page bios for all senior personnel

Independent Project Evaluation

A proposal must describe appropriate project-specific independent review and feedback processes.

- The review might include an external review panel or advisory board or a third-party evaluator.
- The review must independent and rigorous
- The proposal must
 - Describe the expertise of the external reviewer(s);
 - Explain how that expertise relates to the goals and objectives of the proposal;
 - specify how the PI will report and use results of the project's external, critical review process.
- There can be different groups providing formative and summative evaluation

How Will Others Learn About The Project?

- Plan and describe specific strategies for dissemination of products or findings to researchers, policy makers, practitioners, and other relevant constituency groups.
- Requirement to provide project data as requested by the STEM Learning and Research (STELAR) Center.

Supplementary Documents

- Letters of collaboration (commitment, not support) from project partners*
- Data Management Plan
- Postdoctoral Mentoring Plan
- 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.
- Direct costs: Not allowed for secretary or services provided through indirect costs.
- No cost sharing
- Limited equipment; no undergraduate tuition

Common reasons for proposals to be rated non-competitive

Importance

- Proposed problem not nationally important
- Weak, vague, or no connection to STEM content
- Relevant literatures not cited

Methods

- Inadequate or inappropriate research design
- Vague or inappropriate data collection & analyses
- Too much data being collected
- Appropriate expertise not represented
- Cost at small scale prohibitive when scaled up

Some Things POs Suggest You Avoid

- Ignoring requirements stated in the solicitation or the Grant Proposal Guide
- The "Trust Me" approach. Provide citations or evidence for critical assertions made.
- The "Oversell" of yourself or your project; take a neutral tone and let the evidence speak.
- General, vague, or rambling narrative without precision and details.
- Overemphasis of rationale for the project while neglecting methodology and details of what will actually be implemented.
- Note: URL's are no longer allowed in Project Description

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 impacts in the *Project Summary* and *Project Description*
- Unauthorized documents/data in the appendix or supplementary document section.
- No Post-doc Mentoring Plan if post docs are included on budget
- No Data Management Plan

Where to Submit

NSF's FastLane:

https://www.fastlane.nsf.gov/index.jsp

- Collaborative proposals must be submitted through FastLane.
- Fastlane will check for required sections of proposals.

Grants.gov:

http://www.grants.gov (submit here 2-3 days in advance of deadline since this site takes may take 1-2 days to inform you of errors requiring resubmission, thus making yoru proposal late.)

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

- Call (703) 292-8628
- Email: **DRLITEST@nsf.gov**
- Contact an ITEST Program Director

Note: It is often advisable to discuss your proposed project with a program officer prior to submission. You may request a phone call. Sometimes it is helpful to submit a brief summary of your project prior to a call.