Program Evaluation of ITEST:
Innovative Technology Experiences for Students and Teachers

NSF's Innovative Technology Experiences for Students and Teachers (ITEST) program aims to strengthen the formal and informal learning experiences of K-12 students to cultivate their interest in and capacities for science, technology, engineering, and mathematics (STEM) careers. Since 2003, ITEST has funded nearly 150 projects to help build the future STEM workforce. ITEST projects provide meaningful learning opportunities for youth and their teachers, with a focus on increasing the understanding about possible STEM careers. A subset of the projects that have shown success are being funded to scale up. Others are working to improve the knowledge base on effective STEM experiences by conducting research or convening researchers and practitioners.

SRI International, an independent, nonprofit research institute, in collaboration with Inverness Research, Inc., has been contracted by NSF to conduct a 3-year program evaluation to assess the ITEST program's impacts and to garner lessons for future investments.

Research Questions

The evaluation has been designed to answer the following research questions:

1. What are the projects' impacts?
    - What are the achieved outcomes in key areas for students and teachers in ITEST projects?
    - Do youth who participate in ITEST projects demonstrate greater interest in STEM activities and careers than nonparticipants?
    - To what extent are project evaluations rigorous?
2. What project models are most effective in delivering desired student and teacher outcomes? What project characteristics contribute to these models' success?
3. How can we best characterize and describe ITEST projects?
    - What do the projects do?
    - Who do the projects serve?
    - Where and when are ITEST project activities taking place?

Research Design

To undertake this complex evaluation, SRI will employ a multi-method research design, including:

- **Analysis of the ITEST Portfolio**
  Evaluators will review available documents on all ITEST projects including project proposals, annual performance reports, evaluation reports, final reports, and other documents produced by the projects such as journal articles. Specific areas for review include project inputs (e.g., project goals, activities, location, focus, and format); project outcomes; and the level of rigor of project evaluations. After completing analytic summaries of each project, we will conduct a cross-project analysis to identify patterns and themes, categories of outcomes and outcomes measures, and the strengths and limitations of evaluations. We will conduct the initial portfolio analysis in winter 2011, and we will add new projects to the analysis in winter 2012 and winter 2013.

- **Case Studies**
  To understand how ITEST projects function and the characteristics that contribute to a model's success, as well as the impact of the projects on participants' interest in and capacities for future STEM study, the evaluation will include case studies of 24 projects (8 case studies in each year of the evaluation). Each 3-day case study will include (1) interviews with the principal investigator, project staff, the local evaluator, and partners; (2) focus groups of participants; and (3) observations of project activities. We will conduct case studies in spring/summer 2011, 2012, and 2013.

- **Quasi-experimental Studies of Impact on Participants**
  In six of the projects targeted for case studies, we also will conduct quasi-experimental studies to gauge the success of the selected ITEST projects in achieving desired outcomes. Specifically, the quasi-experiments are designed to determine if youth who participate in ITEST projects demonstrate greater interest in STEM activities and careers than nonparticipants. We will administer preprogram and postprogram surveys to project participants and an appropriate comparison group and test for differences in outcomes between the treatment and control groups. For three projects, we will administer the pre- and postprogram surveys in fall 2011 and spring 2012, respectively. For three other projects, we will administer the pre- and postprogram surveys in fall 2012 and spring 2013, respectively.

Contact Information

For more information about the study, please contact:

- Patrick Shields, Ph.D., Principal Investigator, 650-859-3503, patrick.shields@sri.com
- Marie Bienkowski, Ph.D., Project Director, 650-859-5485, marie.bienkowski@sri.com
- Marjorie Wechsler, Ph.D., Co-Project Director, 650-859-4822, marjorie.wechsler@sri.com

ITEST Evaluation Timeline

Task	Year 1				Year 2				Year 3			
	2010	2011			2011	2012			2012	2013		
	F	W	Sp	S	F	W	Sp	S	F	W	Sp	S
Revise design	♦	♦										
Gather data & analyze portfolio	♦	♦			♦	♦			♦	♦		
Conduct case studies			♦	♦			♦	♦			♦	♦
Conduct quasi-experiments					♦		♦	♦	♦		♦	♦
Convene expert panel		♦				♦				♦		
Create reports		♦		♦		♦		♦		♦		♦
Progress meetings with ITEST program officers	♦				♦				♦			