

**NATIONAL SCIENCE FOUNDATION (NSF)
COMPUTER SCIENCE EDUCATION RESEARCH CONGRESSIONAL REPORT
IN COMPLIANCE WITH PUBLIC LAW 114-329:
AMERICAN INNOVATION AND COMPETITIVENESS ACT, SEC. 310 (E)**

Summary

The American Innovation and Competitiveness Act, 2017, Public Law 114-329, requires the National Science Foundation (NSF) to undertake specific activities regarding computer science education research (Sec. 310):

“(b) GRANT PROGRAM.-

(1) IN GENERAL. — The Director of the Foundation shall award grants to eligible entities to research computer science education and computational thinking.

(2) RESEARCH. — The research described in paragraph (1) may include the development or adaptation, piloting or full implementation, and testing of —

A. models of preservice preparation for teachers who will teach computer science and computational thinking;

B. scalable and sustainable models of professional development and ongoing support for the teachers described in subparagraph (A);

C. tools and models for teaching and learning aimed at supporting student success and inclusion in computing within and across diverse populations, particularly poor, rural, and tribal populations and other populations that have been historically underrepresented in computer science and STEM fields; and

D. high-quality learning opportunities for teaching computer science and, especially in poor, rural, or tribal schools at the elementary school and middle school levels, for integrating computational thinking into STEM teaching and learning.

(c) COLLABORATIONS. — In carrying out the grants established in subsection (b), eligible entities may collaborate and partner with local or remote schools to support the integration of computing and computational thinking within pre-kindergarten through grade 12 STEM curricula and instruction.

(d) METRICS. — The Director of the Foundation shall develop metrics to measure the success of the grant program funded under this section in achieving program goals.

(e) REPORT. — The Director of the Foundation shall report, in the annual budget submission to Congress, on the success of the program as measured by the metrics in subsection (d).

(f) DEFINITION OF ELIGIBLE ENTITY. — In this section, the term “eligible entity” means an institution of higher education or a non-profit research organization.”

Background

The Computer Science for All: Researcher Practitioner Partnerships (CSforAll: RPP) program began with solicitation NSF 17-525.¹ The CSforAll: RPP program synopsis in the program solicitation states that:

¹ www.nsf.gov/pubs/2017/nsf17525/nsf17525.htm

“This program aims to provide all U.S. students the opportunity to participate in computer science (CS) and computational thinking (CT) education in their schools at the K-12 levels. With this solicitation, the National Science Foundation (NSF) focuses on researcher-practitioner partnerships (RPPs) that foster the research and development needed to bring CS/CT to all schools. Specifically, this solicitation aims to provide high school teachers with the preparation, professional development and ongoing support that they need to teach rigorous computer science courses, and K-8 teachers with the instructional materials and preparation they need to integrate CS/CT into their teaching.”

Metrics

The program’s first deadline for proposals was February 28, 2017. NSF convened merit review panels in April 2017, and the program made its first cohort of 34 two- to four-year awards by the end of FY 2017. Short-, mid-, and longer-term metrics for success were developed and reported upon, as follows:

- Short-term metrics will focus on ensuring that the program is making awards in the four areas outlined in the law and that the awards address the goal of broadening participation in computer science. One indicator of broadening participation is the diversity of the populations targeted in the awards.
- Mid-term metrics will include the extent to which funded projects are achieving goals as measured by the progress reported in NSF’s required annual and final project reports.
- Longer-term (beyond five years) metrics will include an evaluation of the outcomes of the program, which are based on the program aims as described in the program solicitation and the well-aligned requirements of Public Law 114-329. Program staff are working with the Evaluation and Monitoring Group in the NSF Directorate for Education and Human Resources and the Evaluation and Assessment Capability within the NSF Office of Integrative Activities to develop (1) a set of specific longer-term metrics and (2) a program evaluation plan for measuring the collective success of the CSforAll: RPP projects on these longer-term metrics.

Report on the Success of the Program as Measured by the Short-Term Metrics

Below is a summary of the CSforAll: RPP projects that were funded in FY 2017 pursuant to NSF 17-525:

- 15 awards address subsection (b)(2) A and (b)(2) B; and
- 13 awards address subsection (b)(2) C.

In addition, the program also supported four awards for conferences (workshops), and two awards for backbone organizations.

Finally, all awards except those supporting backbone organizations identified at least one underrepresented or underserved group, as outlined in the table below, to address subsection (b)(2) D. (Note: some awards serve more than one underrepresented group and thus the numbers of awards in the table below total to more than 34.)

**Underrepresented or Underserved Group
Served by Backbone Organizations**

Category	Groups Served
Rural	12
Low Socio-Economic Status	8
Disabilities	4
Pacific Islanders	1
Women/Girls	10
English Language Learners	2
African-Americans	10
Native Americans	4
Latino/a	17