

## Extending the CS Pipeline: Enhancing Rigor and Relevance in Middle School CS

**Grant Type:** *Early-phase*: STEM

**Absolute Priorities 1** Demonstrates Rationale & **2** Field-Initiated Innovations Promoting STEM Education with CS Focus; **Competitive Preference Priority** Expanding access to and participation in rigorous CS coursework for underrepresented students

**Total # of Students to be Served:** 25,500; **Grade Levels:** 5-8

**High-Need Students:** African American, Hispanic, Female, and/or Economically-Disadvantaged

**Project Description:** This project aims to broaden participation of high-need students through access to and engagement with rigorous and relevant middle school (MS) CS which subsequently will increase CS-related interest, self-efficacy, and achievement. We propose to accomplish this by implementing a *CSE TA Framework* (TAF) with MS educators that involves tailored, purposeful TA, or by providing this TA integrated with participation in a researcher-practitioner partnership (RPP; TA+RPP).

**Objectives and Expected Outcomes:** (1) collaboratively refine a *TAF* to increase rigor and relevance in MS CS education (CSE); (2) implement the CSE TAF to build capacity of MS educators to integrate and rigorously implement CSE by delivering embedded, targeted, and sustained TA inclusive of PD; (3) enhance educator engagement and collaboration in MS CSE through an RPP involving a randomly selected group of schools; (4) determine the degree to which the TA and TA+RPP conditions improve girls' and historically underrepresented MS students' attitudes, self-esteem, and academic achievement in CS; (5) assess degree to which the TA and TA+RPP conditions increase the # of girls and underserved students who take CS in MS and HS; and, (6) measure added value of combining TA with an RPP using a cluster RCT design that meets What Works Clearinghouse (WWC) evidence standards.

**Special Project Features:** (1) Focus on suburban high-need student populations (2) Transfer of successful RPP processes and structures to MS (3) Test efficacy of two delivery methods to build teacher capacity and impact student learning – provision of TA and provision of TA+RPP

**Partnering Organizations:** Rutgers University, Deacon Hill Research Associates, 38 LEAs