A Model for Statewide Deployment of CS Principles Courses

PIs and Senior Personnel: *Jeff Gray, Mary Boehm, Carol Crawford, Kathleen Haynie, Sheryl Packman, Deepa Muralidhar*

Master Teachers: *Jeff Baker, Roy Black, Sandy Falgout, Leella Holt, Albert Lilly, Gina McCarley, James Morse, Jennie Rountree, Jill Westerlund, Carol Yarbrough*

University of Alabama Students: *Mokter Hossain, Jonathan Corley, Amber Wagner, Cassidy Lamm*

http://csprinciples.cs.ua.edu

THE UNIVERSITY OF ALABAMA COMPUTER SCIENCE

CS4Alabama

A National Math and Science Initiative Program

A+ COLLEGE READY

A Division of the A+ Education Partnership

This project is supported by NSF Award #1240944

MOTIVATION AND PROJECT GOALS

Motivation and Background

- Alabama participation in AP CS A traditionally low (<100 students per year over past 5 years)
- Yet, clusters of national tech leadership (Huntsville #4 in USA, per capita, in STEM workers)
- Successful AP Training and Incentive Program across Alabama high schools, as implemented by A+ College Ready as part of the National Math and Science Initiative:
  Alabama's success in improving AP math, science and English scores from 2008-2011 for both all students and minority students leads the nation (% increase in qualifying scores).
- University of Alabama participation as an NSF/College Board CS Principles Pilot Site (Pilot II-IV); sharing of results with southeast teachers through Google CS4HS support

Project Goals and Scope

- Train 50 high school teachers through extended Professional Development (beyond 1-week APSI) over a three-year period, while introducing 2,500 students to CS Principles content
- Sustainability and scalability through leverage and continued adoption by A+ College Ready
- Broadening participation through open access to AP courses using the NMSI model
- Dissemination of curricular materials and results of evaluation assessments to support PD

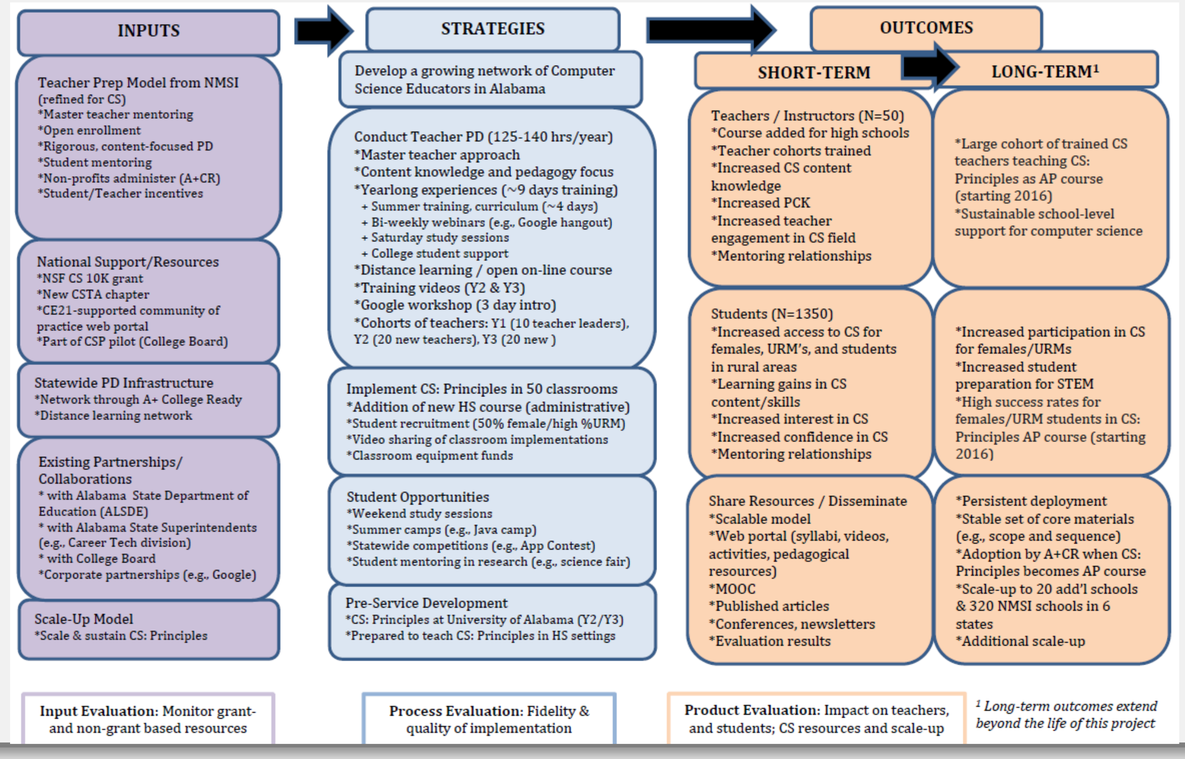
ACTIVITIES AND IMPLEMENTATION DETAILS

The project is driven by the following core activities: 1) Master Teacher mentoring and vertical teaming using face-to-face and online collaboration; 2) Open enrollment to increase diversity of participation; 3) Rigorous course content for year-long professional development; 4) Student mentoring and skills development; 5) Incentives for teachers and students.

- Year 1: Ten Master Teachers with CS AP experience assist in developing CS Principles curricula resources and Piloting a course
- Years 2 and 3: Twenty teachers each year collaborate with an assigned Master Teacher for year-round professional development and mentoring while introducing a new Pilot
- Undergraduate students in both CS and Education pre-service teachers, and a CS PhD student, assist PIs in training and curriculum development

CS4Alabama Master Teachers Summer 2013 PD Workshop

CS4ALABAMA LOGIC MODEL



INITIAL EVALUATION RESULTS

- Course enrollment for the 9 pilots in Fall 2013 ranged from 9 to 57 students (median=20).
- 46% of students were female or under-represented minority.
- Implementation successes included: student engagement in activities, use of App Inventor, Scratch, & Alice, development of Apps & games, talks from industry experts & video presentations; student creativity evident.
- Implementation challenges included: student writing, helping students locate good data sources, fostering equal participation in collaborations, helping students learn to sequence steps in a program and explain their program.