Chapter 1

A Critical Crossroads for Computer Science for All:
"Identifying Talent" or "Building Talent," and What Difference Does It Make?

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ABSTRACT

This chapter builds upon research findings that identified pernicious belief systems and structural inequalities that limit opportunities for students of color and females to have access to computer science learning opportunities (Margolis, Estrella, Goode, Holme, & Nao, 2008). The chapter shows how President Obama's agenda of Computer Science for All presents unusual opportunities for and potential threats to attempts to democratize computer science learning. Two approaches to broadening participation in computing are contrasted: "building" and "identifying" talent. These two approaches are examined within the context of school tracking—one of the most persistent structural forms of inequality in today's schools (Oakes, 2005). The Exploring Computer Science program and three case studies of students within the program are discussed as examples of a "building talent," detracking educational reform.

INTRODUCTION

In early 2016, Obama announced his presidential agenda of Computer Science for All. As described by the White House (Smith, 2016):

Computer Science for All is the President's bold new initiative to empower all American students from kindergarten through high school to learn computer science and be equipped with the computational thinking skills they need to be creators in the digital economy, not just consumers, and to be active citizens in our technology-driven world. Our economy is rapidly shifting, and both educators and business leaders are increasingly recognizing that computer science (CS) is a "new basic" skill necessary for economic opportunity and social mobility.

Key to the president's announcement was the emphasis on *all* students. As a result, initiatives around the country that are focused on broadening participation in computing (BPC) suddenly faced a spike in attention and unusual opportunities to scale.

Along with these opportunities come a growing number of strategic questions that must be answered in order to effectively carry out the president's agenda. How early can students start learning computer science? How should the curriculum be designed? Who will teach the courses and how will they teach them? Will a full pathway of courses exist in all schools? Where will funding come from for the most underserved communities? What state policies could help ensure that opportunities are provided for all students? All of these strategic decisions will impact whether we move closer to implementing Computer Science (CS) for All, or if our initiatives end up de facto reinforcing the status quo of underrepresentation of African American, Latino, Native American, and female students in computing. In this way, our broadening participation movement is at a critical crossroads.

In this chapter, we will discuss this critical crossroads and several potential threats to implementing the vision of CS for All. Latest studies show that many U.S. schools still do not offer computer science in Grades 7–12 and that African American and Latino students are less likely than White students to have access to school computer science learning opportunities (Google & Gallup, 2015). In California, African Americans and Latinos are 59% of public school students, but were just 11% of 2014 CS Advanced Placement (AP) test takers (Martin, McAlear, & Scott, 2015; Yettick, 2014). How has this occurred and why does it persist?

In earlier research on why so few African Americans, Latinos, and females are studying computer science, we identified pernicious belief systems and structural inequalities that limit opportunities for students of color and females to have access to computer science learning opportunities (Margolis, Estrella, Goode, Holme, &

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