

# Equity-focused Computer Science Education in Durham, North Carolina

## PROJECT TOPIC

Durham Public School Professional Learning Communities: *Catalyzing Equity in High School Computer Science Education*

## NAME

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## I. BACKGROUND AND SIGNIFICANCE

North Carolina (NC) has 18,000 unfilled computing jobs, yet it has fewer than 6,000 students in computer science (CS) classes, even fewer of whom are women or students of color. On the state-level, the NC Department of Public Instruction (DPI) has provided little guidance about equity in CS education. Therefore, this research examines CS education on the district-level within Durham Public Schools (DPS) and its impact on women and students of color. Based on the findings, I recommend DPS to create teacher Professional Learning Communities (PLC) centered around recruiting more women and retaining more students of color in CS classes.

## II. RESEARCH METHODS

Of the seven DPS schools that offer CS courses, I interviewed one teacher from each of four schools: Teacher Riley (Riverside), Dakota (Hillside), Alex (New Tech), and Ford (Jordan). Interviews were semi-structured and were between thirty to forty-five minutes. They were conducted from October 2018 to December 2018 by phone. The interview questions were organized by four categories: class demographics, teaching background, test performance, and policy recommendations. Research was conducted under the mentorship of Julia Brinton from RTI International's Global Gender Center.

## III. FINDINGS

### State-level:

- CS classes receive less support than other Career Technical Education (CTE) courses. All non-Advanced Placement (AP) CS classes are categorized as CTE classes, but NC DPI has not funded a position for CS initiatives, recruited and trained CS teachers, and shared CS materials with parents and students.
- NC DPI has not set content standards for CS courses. Due to the lack of content standards, DPI has not constructed curriculum materials and a course sequence for CS high school education.

### District-level:

- DPS CS teachers lack a teacher community. PLC's are communities of DPS teachers in the same subject area that seek to professionally support one another. There is currently no CS PLC within DPS. Like other teachers, CS teachers face specific difficulties within their subject area that can be addressed through a PLC.

### Classroom-level:

- Students of color do not continue with more advanced CS classes. DPS students of color participate in introductory CS classes at rates higher than the national average. However, there are few, if any, students of color in AP classes.
- There are few women across all CS classes. In both introductory and advanced CS classes, 75% of teachers reported alarmingly low rates (<25%) of women students.

## IV. RECOMMENDATION

I recommend the creation of a PLC for CS high school teachers that focuses on the following:

1. **Recruiting More Women into CS Classes:** The PLC should research and recommend intentional initiatives to recruit more women into CS classes. Initiatives like mentoring, networking, or internship opportunities could help women overcome internal and external barriers to CS participation.
2. **Retaining More Students of Color into Advanced CS Classes:** Students of color participate in introductory CS classes at extremely high rates. However, they choose to not continue to more advanced CS classes. The PLC should examine to better foster CS interest and engagement in students of color during introductory CS classes so they continue onto advanced CS classes.