

Introducing Computer Science into K-8 Classrooms: Teachers' Perspectives from a Large, Urban School District

Erica Wheeler
Chicago Public Schools
ewheeler6@cps.edu

Diana Franklin
University of Chicago
dmfranklin@uchicago.edu

John Wachen
The Learning Partnership
jwachen@lponline.net

Andrew M. Rasmussen
Chicago Public Schools
arasmussen@cps.edu

David Weintrop
University of Maryland
weintrop@umd.edu

ABSTRACT

As part of the national Computer Science for All initiative, there is a growing presence of computer science (CS) in K-8 classrooms. This poster presents findings from a survey of 130 K-8 teachers from Chicago Public Schools (CPS) about the state of computer science in their schools and their experiences teaching it. Results from the survey highlight the plurality of ways CS is being implemented in the classroom. The survey also reveals challenges instructors face in teaching CS. Finally, the survey reports on teachers' own experiences in the classroom, finding that teachers enjoy teaching CS and think their students also enjoy CS.

CCS CONCEPTS

• **Social and professional topics** → **Professional topics** → Computing Education

KEYWORDS

K-8 Computer Science Education; CS for All; Teachers

1 INTRODUCTION

As part of the Chicago Public School's Computer Science 4 All initiative, the district took a decentralized approach to implementing CS in elementary grades. This meant schools participating in the program were able to adopt or create a curriculum of their choosing. This decentralized approach is a relatively common practice in districts across the country and schools around the world, especially in younger grades.

A challenge associated with this approach is that it is difficult for the district to understand what is happening across elementary schools. This lack of understanding is problematic when districts seek to develop approaches to support implementation and scale up. That is, in order to strategically support the expansion of CS across the district, it is critical to

first understand the current landscape of CS implementation. Using CPS as a case study, this poster presents data toward answering the following research questions: (1) *What CS instructional materials are being used in K-8 classrooms in a large, decentralized school district?* (2) *Who is teaching K-8 CS classes, what is their prior CS experience, and how do they feel about teaching CS?*

2 METHODS / RESULTS / CONTRIBUTIONS

To begin to answer these questions, we administered a district-wide survey to K-8 teachers currently teaching CS. The survey covered 6 topics: Teacher demographics and experience, Perceptions of what constitutes CS, Teaching experience with CS, Attitudes toward CS, Specific curricula and instructional materials, and Recent curricular trends. This work builds on and extends the growing body of survey research looking at k-12 CS education [1].

Across the 130 teacher responses, over 50 different environments, technologies, or curricula were mentioned by name as being used in the last year. Similarly, teachers have a wide variety of prior CS experiences and vary greatly in terms of confidence, interest, and self-reported ability.

Our analysis also found that teachers use a number of different standards and see the goal of teaching CS in elementary school being both to teach CS-specific skills such as programming as well as to support learning other disciplinary content. When asked what they teach in their CS instruction, the most common topics included problem solving, computational thinking, and creativity & personal expression. Overall, teachers largely enjoy teaching CS, citing the flexibility and freedom of instruction that it enables. This work advances our understanding of the current state of CS in K-8 schools and can help inform future initiatives to achieve the goal of CS for all.

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REFERENCES

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