



Pathways to Teaching K12 Computer Science: Implications of a Pilot Study of Ten States

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Research Objective

To address the data gap related to pathways to CS teacher certification by mapping the pathways and their requirements across states.

Project Overview

- The U.S. government tracks initial certifications only, creating a data gap for CS teachers.
- This data gap may be an impediment to expanding CS education.
- To address this gap, we have begun a project to map the pathways to CS teacher certification.
- Our initial phase of data collection consisted of content analysis of documents and interviews with state-level CS leaders.
- We gathered data about each pathway to teaching CS and its requirements.
- Our future work includes expanding data collection to more states and to the count and demographics of teachers in each pathway

Key Implications

The extended CAPE framework

We conclude that extended CAPE framework is robust enough to capture most facets of state CS teacher pathways; the following additions to the extended CAPE framework could be considered:

- Capacity → Human Resources → Professional Development → Inservice Teachers of Another Subject
- Capacity → Human Resources → Pre-service Learning Networks/Communities
- Capacity → Human Resources → Mentors for Novice/Pre-service Teachers
- Capacity → Human Resources → Teachers → Pedagogy
- Capacity → Policies → Pathways to Teaching CS

CS professional development and curriculum providers

Our findings may support CS PD and curriculum providers in tailoring their offerings to best support CS teachers (e.g., an awareness of what percent of their audience is likely to have evidence of CS content knowledge and/or pedagogy content may help with planning content).

CS education researchers

There is minimal research exploring the impact of various pathways or pathway requirements on CS teachers and their students; our work is a foundation for additional research.

Certification providers and state-level decision-makers

An understanding of the pathways, their requirements, and the number of CS teachers following each pathway will provide important information for those organizations providing CS teacher certification (e.g., higher education, independent providers) into which pathways offered in other areas might be appropriate to emulate and which pathways draw teachers – including from groups historically underrepresented in computing – into the classroom.

The Pathways

