Co-Designing Learning Experiences to Support the Development of Culturally Relevant CS Lessons in Elementary Classrooms

Culturally Relevant Teaching Professional Development Goals

1 Establish norms for a safe, professional environment

2 Establish cultural competence language and understanding using Cultural Proficiency Framework and Continuum and the web-based Cultural Proficiency Continuum Dialogic Protocol (Cormier, 2021)

3 Focus professional development on Culturally Relevant and Responsive Teaching skills (Gay, 2018; Ladson-Billings, 1995, 2017) and integrate culturally relevant teaching and computer science skills into the lesson planning process

Culturally Responsive Teaching (Geneva Gay, 2018)

Cultural Proficiency: A Manual for School Leaders (Lindsey et al., 2018)

Courageous Conversations About Race (Singleton, 2014)

Culturally Proficient Instruction: A Guide for People Who Teach (Robins et al., 2006)

Start Where You Are, But Don't Stay There (Milner, 2017)

Project Snapshot

Established in May 2022, this is a 3-year project in its first year

Working with 2 school districts in the Commonwealth of Virginia - one urban and one suburban.

Starting in 2 schools located 10 miles from one another in Central Virginia

Co-led and developed by 8 K5 educators (5 teachers, 1 librarian, 1 peer administrator, 1 division-level administrator), 3 researchers and 2 nonprofit leaders.

Research Goals

1 Co-construct research questions as an RPP.

2 Collaboratively address research questions and provide data back to schools.

3 Using DBIR, develop PD, Toolkit, and what is needed to support the use and implementation of CSFAB-Teacher tools.

RQ1

How can CSFAB-Teachers help teachers develop culturally responsive, CS-integrated lessons?

Data Sources	Methods	Year 1 Plans
Participants 8 teachers, 3 researchers, 2 nonprofit leaders	**Lesson plans** scored for level of cultural relevance and CS integration using co-constructed rubrics in Toolkit	**Emergent themes/ challenges**
Lesson plans created during PD		**Results used to refine toolkit and implementation**
Semi-structured **post-PD interviews**	**Thematic analysis** of interview data	

RQ2

How do teachers' cultural competency, CS understanding, and self-efficacy for teaching CS change over time through participation in CSFAB-Teachers?

Data Sources	Methods	Year 1 Plans
Participants 8 teachers, 3 researchers, 2 nonprofit leaders		**Case studies and cross-case themes**
Teacher self-efficacy surveys before/after PD, after implementation	**Case studies and cross-case analysis of teachers**	
Teacher CS PD artifacts		**Results used to refine toolkit and approach**
Teacher interviews, videos, reflections		

Preliminary Results

- Workshop facilitators' large influence on discussions about cultural competency
- Focus on navigating, bridging and leveraging expertise of facilitators
- Participants' value of a shared rubric to evaluate lessons for cultural relevance

Implications

- Contribute to understanding of how to support culturally relevant CS instruction in elementary settings
- Future work will continue to refine teacher learning opportunities for the RPP
- Toolkit to disseminate to the field

CS For and By Teachers *An Integrative Toolkit for 3rd-5th Grade Classrooms*

We are creating and testing a **professional development model** and **computer science Integration Toolkit** to provide elementary teachers the necessary skills and resources to create and continually adapt their own **culturally relevant, computer science-integrated** lessons for their own diverse classrooms settings.

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