Implementing Culturally Responsive Coding Projects with Indigenous Communities

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ABSTRACT

This study took place in the context of a researcher-practitioner partnership (RPP) between a research organization, the Wyoming Department of Education, and three school districts serving primarily Eastern Shoshone and Northern Arapaho students on the Wind River Reservation. The goal of the RPP is to integrate instruction on the Indian Education for All Wyoming social studies standards with the Wyoming computer science standards in elementary school in ways that are culturally responsive [1]. The project team provided 12 hours of professional development across three sessions, three professional learning community sessions, lesson plans, and model projects. Teachers were expected to implement three coding projects across the school year. The study team collected data via teacher interviews, surveys, and observations of professional development and professional learning community sessions [2]. Three problems of practice that emerged from our preliminary qualitative analysis [3] include: (a) how to support student interest and engagement in computer science especially upon first introduction of a coding platform, (b) how to find time in the school day for computer science and to develop methods for integrating computer science with other subjects, and (c) how to build collaboration across classrooms and districts. The poster will discuss the adaptations teachers made to address the first two problems of practice and the RPP's strategy for addressing the third problem of practice in our next year of implementation. These findings will be of interest to researchers and practitioners working to implement culturally responsive computer science instruction in elementary schools in Indigenous communities.

1 ADDITIONAL CONTENT

We provide the research questions and examples of how teachers addressed the first two problems of practice. This content will be included on the poster.

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1.1 Research Questions

The research questions addressed in this poster are:

1. What problems of practice arise while developing and implementing coding projects that integrate social studies and CS standards?
2. What adaptations and enhancements arise while developing and implementing coding projects that integrate social studies and CS standards?

1.2 Examples of Adaptations and Enhancements

1.2.1 Supporting student interest and engagement. Because students did not initially see the connection between computer science and their own experiences, teachers implemented coding projects directly related to student interests (e.g., creating dream bedrooms) before implementing the RPP's model coding projects.

1.2.2 Integrating with other subjects. Some teachers did not have dedicated time in the school day for computer science or a dedicated social studies teacher. They created projects that integrated coding and science or language arts and had students describe the subject-specific content using Indigenous languages.

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