Determining the Impact of Teacher Professional Development on Perceived Ability to Teach a Computer Science Principles Course

Thomas Price, Veronica Cateté, Jennifer Albert and Tiffany Barnes
NC State University
{twprice, vmcatete, jlsharp, tmbarnes}@ncsu.edu

Abstract:
During the summer of 2014, 57 teachers attended Professional Development (PD) training on the Beauty and Joy of Computing (BJC) curriculum for the AP Computer Science Principles course. The PD consisted of 6 weeks, with the first and last weeks held in person, and the middle four weeks consisting of projects and assignments in an online edX course. This poster evaluates the effectiveness of that PD through pre- and post-survey data collected from the 57 attendees at the NC State University and UC Berkeley sites.

We attempt to address the following questions in the poster through our evaluation of the PD:
- What aspects of the PD did teachers find effective and ineffective?
- How did the PD affect teachers' perceived ability and intentions to teach a CS principles course?
- How did a teacher's background and level of participation in the PD relate to the effectiveness of the PD?

We found that the PD significantly improved participants' perceived fluency in each of the PD's four core content areas (equity, content, inquiry/engagement and differentiation). Teachers completed BJC programming labs to understand the material from their students' perspective, and we saw the strongest improvement in teachers' perceived ability to use the SNAP programming language. We also found that teachers with prior CS experience showed a greater improvement in perceived knowledge of BJC content, indicating that some PD material may have been inaccessible to novices.

A primary goal of the PD was to encourage teachers to use the BJC curriculum in their classes; however, there was no significant increase in teachers' intentions to use BJC after the PD. Interestingly, there was little correlation between how much of the BJC curriculum the teachers intended to use before and after the PD, indicating that teachers' intentions did change, but not uniformly.