

PROMOTING COACHES' LEARNING THROUGH DOING THE MATH TOGETHER

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Mathematics coaching is deeply complex work that requires coaches to develop and draw upon multiple forms of expertise related to mathematics, mathematics teaching, and mathematics coaching (Polly, Mraz, & Algozzine, 2013). Yet, few studies have explored how professional learning experiences for mathematics coaches might support their development of these forms of expertise (Jackson et al., 2015). Through an analysis of a representative instance in which elementary mathematics coaches participated in a professional development activity called *doing the math* (Loucks-Horsley et al., 2010), we aim to contribute to the growing body of research focused on how coaches' own professional learning opportunities might be structured.

Our study took place in Hamilton School District, which is a public school district located in a metropolitan area in the southeastern United States. We partnered with one district administrator and 12 elementary mathematics coaches. Eight of the coaches were entering their fifth year as coaches, while three were in their first or second year. Data sources included video data of these professional development sessions (n=6) as well as interview data (n=15) in which participants described their own learning. All data were professionally transcribed.

To understand what opportunities for professional learning were opened up or closed down, we first coded for representations of practice and epistemic claims in the *doing the math* transcript segments. Next, we addressed whether a representation of practice or an epistemic claim was centered on students, mathematics, mathematics teaching, and/or mathematics coaching. To understand our participants' perspectives on the benefits and drawbacks of participating in *doing the math*, we engaged in an open coding process using interview transcripts (Creswell, 2013).

Our analysis showed that as the coaches engaged in *doing the math* together, opportunities were opened up for them to discuss students' and their own mathematical thinking, the mathematical concepts and disciplinary practices included in the task, how those concepts and practices were related to grade level expectations, how tasks could be put to practical use by teachers, and the ways in which teachers can enhance mathematical access for all students. Yet, our analysis also showed that through *doing the math*, explicit conversations about mathematics coaching were not typically available for discussion. Our participants discussed four benefits of engaging in *doing the math*: being placed in the seat of a learner, deepening their own understanding of the mathematics standards, deepening their understanding of how to support students' access to mathematical tasks, and sharing the task as a resource with teachers. They also cited two drawbacks to consider when implementing *doing the math* as a professional development activity, including a lack of time and teacher resistance.

Our study adds much needed research describing how coaches' professional learning might be structured. Future research might consider exploring how to interweave explicit conversations about coaching into coaches' professional learning opportunities.

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