

CHALLENGES IN IMPROVING AND MEASURING MATHEMATICS DISCUSSION LEADING PRACTICE

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This study is an effort to address the challenge of supporting the enhancement of teaching practice. Our model situates professional development (PD) in mathematics instruction occurring in a summer program for fifth grade students. This PD model has two parts. First, participants engage in “legitimate peripheral participation” (Lave & Wenger, 1991) in teaching in this fifth grade classroom through structured conversations about the lesson plans, close observation of teaching, and analysis of student tasks. Second, participants engage in focused learning on leading mathematics discussions through simulations and rehearsals. Two groups of teachers participated, one onsite with a facilitator, and the second at a remote site with an in-person facilitator who delivered the leading mathematics discussion professional development. We study the impact of our PD model. Specifically, we ask: Does teachers’ participation impact their own teaching practice, and if so, in what ways?

Twenty-one teachers participated across the two groups. We collected and analyzed a set of pre- and post-videos of classroom discussions. Participants were asked to record three mathematics discussions two months before the PD occurred and three such lessons two months after participation. A tool that captured techniques named in our decomposition of discussion (Selling et al., 2015), including advanced techniques utilized by experienced teachers, was applied to all videos by two research team members.

Prior to the intervention, the means of technique usage of the remote participants were higher than those of the onsite group on almost every dimension ($p < .05$). Thus, we share the findings for the two groups separately. The onsite group (lower pre-intervention mean) did not appear to be leading discussions before the intervention. They showed slight increases in both orienting students to the thinking of others and concluding discussions. Since the intervention was focused on orienting students, likely an unfamiliar area of work, we hypothesize that this was the focus of their practice post-intervention. Conversely, the remote group (higher pre-intervention mean), who appeared to be leading discussions before the intervention, decreased on several categories and showed near significant growth on connecting and extending student thinking. One possible explanation for these decreases is the timing of the post-data collection at the beginning of the year when they may have been explicitly teaching their students how to engage in discussion, leading to fewer instances of particular discussion-leading moves. The increase in connecting and extending may have been due to readiness to take on this difficult work.

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