A MODEL FOR MATHEMATICS INSTRUCTIONAL IMPROVEMENT AT SCALE

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In this poster, we propose a model for school math instructional improvement that is adaptable to local settings and the organizations and practitioners in them. Different school districts have different problems of practice, and thus adaptive integration of interventions is important as they go to scale—as Penuel et al. (2011) find, successful "scaling up" depends on local actors who make continual, coherent adjustments to interventions as they make their way through various levels of an organization. Indeed, school- and district-level infrastructures that are not optimally designed to support instructional improvement can constrain professional development (PD) efforts to improve the effectiveness of the existing teaching force (Spillane & Hopkins, 2013). Similarly, school districts have been shown to influence the ways in which schools and school leaders implement a wide range of improvement efforts at the school level, thus helping or hindering such implementation (Honig & Rainey, 2014).

The model we propose is particularly designed to improve teachers', teacher leaders', and administrators' understanding of effective math teaching and learning, and to enhance the organizational capacities of schools and districts to support such improvements in math. The model is grounded in a Design-Based Implementation Research process involving collaboration between researchers, and district and school personnel to co-develop math PD from district through teacher levels. The components are: (1) gathering information about problems of practice collaboratively identified by districts, schools, and the research team, and developing related goals; (2) designing and implementing coherent PD that is aligned with identified problems of practice; and (3) engaging in iterative cycles of development, implementation, and revision to productively adapt the model to changing conditions. The iterative redesign process enhances the productive adaptation of the model, allowing it to be effective at scale.

In this poster, we will present our preliminary findings from the first cycle of iterative co-design of the model with stakeholders in four different school districts, including design considerations and challenges that emerged from the co-design process. In doing so, our aim is to make a significant contribution to the knowledge base regarding the process of organizational change in educational settings, effective teacher and administrator PD in math, and researcher-local stakeholder collaboration.

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