

Coaching moves practice

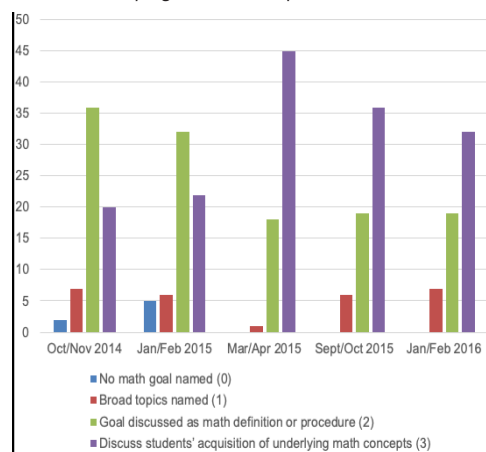
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Recently, the Institute for Learning was selected to bring its expertise and extensive experience with instructional coaching to mathematics educators in the state of Tennessee. More specifically, IFL provided instruction around coaching moves that support high-quality teaching, resulting in improved student learning. In a partnership with researchers from the Learning Research and Development Center, University of Pittsburgh, and the Tennessee State Department of Education via funding from the Institute of Education Sciences (IES), the IFL drew upon previous experience with coaching to extensively explore three key practices: (1) mathematical and pedagogical goal setting; (2) deep, specific conversations about the instructional triangle; and (3) evidence-based feedback.

From this work, our partnership studied a process to guide one-on-one cycles of coach-teacher discussions that incorporated the three key practices. We are excited to share three conclusions coming out of the work: Students of coaching model-affiliated teachers have slightly higher mean TN Ready scores; coaching model teachers reported and exhibited changes in teaching that are aligned with the model's visions of rigorous mathematics instruction; and coaching model teachers' engagement in more pre-conference planning meetings with coaches, observations, and post-observation conferences led to more opportunities for rich content discussions and planning time for rigorous instruction.

While involved in the study, coaches learned to engage teachers in discussions and reflection of mathematical and pedagogical goals. They ensured that the discussions were deep and specific by discussing content and the pedagogy that they would use to support student learning. During the process, the teacher and coach were both actively engaged in making sense of and discussing mathematical goals, pedagogy, and student thinking. The graph below shows how, over time, the teachers in their discussions with the coach moved from naming broad topics to discussing students' acquisition of the underlying math concepts.



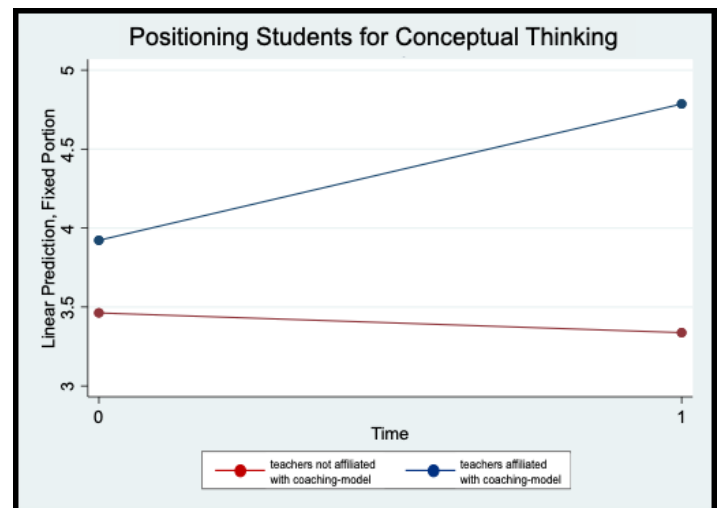
You can see how the content of the pre-lesson conferences changed over time. A greater number of pre-lesson conferences that occurred later in the year involved not only discussion of the math goal, but also student thinking and reasoning related to the math goal. The contrast to the pre-lesson discussions at the beginning of the year is telling, since a number of those contained no discussion of the mathematical goal.

Not surprisingly, the pre-lesson planning conferences between coach and teacher are important to the success of lesson implementation. After ini-

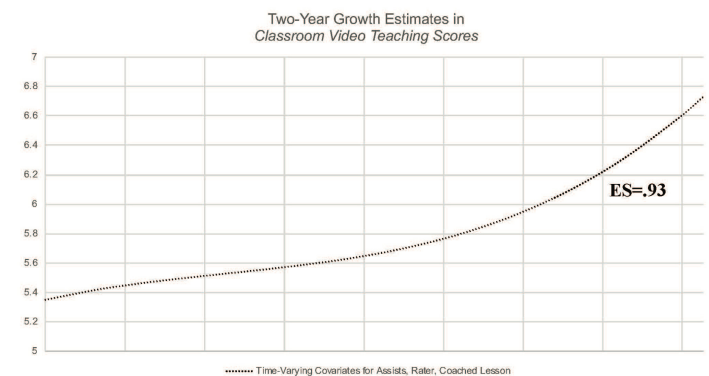
tial conferences, teachers had their lessons video recorded and then coded by experts in the field of mathematics teaching and learning to determine how teachers were positioning students for conceptual thinking during math lessons.

Since we valued conceptual understanding, we developed a scoring system to specifically measure these processes. We took into account that students develop conceptual understanding when they are responsible for figuring out solution paths; students represent situations visually, graphically, and numerically; and they recognize and discuss relationships and make connections.

Teachers received a score if they purposefully selected some students to share their work, whereas a higher score was given to teachers who connected or sequenced students' responses in a meaningful way. As you can see from the graph below, most teachers who were coached via the coaching model received a four or higher.



On average, almost all of the teachers demonstrated substantial growth (effect size of .93) in their practice over the first 2 years of the work. The graph below represents the average estimate for growth in teaching during our first 2 years.



As can be seen by the figures, our partnership with Tennessee State Department of Education mathematics educators showed significant gains in moving teachers toward the model's visions of rigorous mathematics instruction and led to more opportunities for rich content discussions. This instruction directly impacted students as demonstrated by their slightly higher mean TN Ready scores. ■