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**Mathematics teachers attending and responding to students' thinking: diverse paths across diverse assignments.**

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Summary: Professional development (PD) programs often evaluate their impact on teachers' learning by assessing teachers either individually or in groups. The goal of this paper is to illustrate the variety of paths teachers might follow as a result of working in groups within online PD settings. Data are drawn from a PD program for grades 5–9 mathematics teachers. Participants took a series of three online graduate level semester-long courses focused on mathematical content knowledge and student mathematical thinking. During the final course, teachers were asked to complete a series of four group interview assignments that involved attending to student thinking, and an individual final project that involved designing, implementing, and analyzing a learning activity that responded to and built on student thinking. We present a detailed analysis of the work from a group of four teachers, whose learning paths were particularly diverse. We also analyze the feedback provided by the PD facilitators. The group made great strides throughout the four interview assignments in their attention to student thinking. However, the teachers' individual postings on an online forum showed that each teacher shifted in a different direction. Likewise, their individual final projects were dissimilar and demonstrated different approaches to responding to student thinking in the context of their classrooms. This case study shows that teachers' group work may not necessarily be indicative of their individual learning at course completion. Our findings suggest the need to examine teachers' learning from multiple perspectives and by means of varied types of assignments.

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