

**TEACHERS' SELF-FACILITATED INQUIRY IN NOTICING CHILDREN'S THINKING**

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School-based collaborative inquiry groups are increasingly recommended as a key feature of teacher professional development as they allow teachers to enhance their expertise through the investigation of and reflection on their own practice. In this study we explored how teachers in grades 3-5 worked together in self-facilitated, school-based collaborative inquiry (CI) groups to develop the practice of noticing children's mathematical thinking (Jacobs, Lamb, & Philipp, 2010) of fractions. The teachers were participants in a larger study of professional development and were expected to complete a total of 12 CI sessions over three years. Prior to each session, teachers posed a fraction story problem to their class and collected students' written work to bring to the session for discussion. Each CI session involved two teachers, and their conversation was supported by an online protocol that prompted teachers to discuss what they noticed about individual students' strategies.

Data was collected from three groups engaged in their ninth CI session during their third year of professional development. The teachers agreed to audio record their discussion using their own devices, copy the written student work, and mail the recording and images to the off-site researchers. To explore their collaboration, we considered two aspects: the form and the content of these discussions. Form was analyzed using Mercer's *ways of talk* (Mercer, 2000). Content was analyzed in terms of teachers' noticing of children's mathematical thinking, which was defined as the interrelated skills of (a) attending to a child's strategy details, (b) interpreting what the child understands, and (c) deciding how to respond based on that understanding.

Building on Mercer's work, we identified two ways teachers exchanged ideas: *show-and-tell* and *back-and-forth*. Most often teachers used *show-and-tell*, that is one teacher presented what he or she noticed about a student's thinking while the partner teacher listened to and acknowledged the speaker. During these exchanges teachers mostly either attended to the details of the strategy or interpreted the understandings, seldom making connections between the two. In contrast, teachers sometimes used a *back-and-forth* exchange in which they both shared details of what they noticed by building on or challenging one another. We found that in these exchanges teachers more explicitly made connections among attending, interpreting, and deciding how to respond. This exploratory study suggests the importance of looking at not only the content but also the forms of interactions to support teachers' engagement in all three skills of noticing. Further study with a larger sample is needed to confirm and extend these findings.

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