Abstract: Elementary teachers are being asked to engage in ambitious mathematics teaching in order to reform children’s mathematics learning, and it has proven to be challenging. Unraveling the challenges requires understanding the in-the-moment decisions that teachers make while teaching mathematics. In this talk, I will share the results of a study which focused on documenting teacher noticing, the ways in which teachers identify, reason about, and make decisions in the situations that occur when engaging bilingual students in problem solving. Specifically, I used the construct of professional noticing of children’s mathematical thinking (Jacobs, Lamb, & Philipp, 2010) to investigate what three bilingual teachers notice as they participate in a teacher study group to analyze and reflect on their experiences in weekly problem solving small groups. Transcripts of a teacher study groups were analyzed for examples of a set of three connected skills: attending to children’s strategies, interpreting children’s understandings, and deciding how to respond on the basis of children’s understandings. Implications on continued understanding of teacher noticing, effective mathematics professional development and developing understanding of mathematics teaching to English Language learners will be discussed.