Investigating Teacher Noticing in Technology-Enhanced Mathematics Classrooms

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It is widely recognized that the quality of mathematics instruction plays a crucial role in improving learning in mathematics classrooms (Hiebert & Douglas, 2007; Yang & Kaiser, 2022). A key aspect of high-quality instruction is centred around how teachers orchestrate their interactions with students around mathematics tasks (Smith & Stein, 2018). However, teachers face multiple simultaneous events, ranging from students writing down solutions to their peer discussions, when orchestrating these interactions in classroom practice. This makes it challenging for teachers to attend to and interpret critical classroom events for the purpose of responding to students' thinking. Teacher noticing has been widely studied as an important component of teaching expertise (Bastian et al., 2022; Sherin et al., 2011; van Es & Sherin, 2021), needed for such responsive teaching practices. While teacher noticing has been extensively studied in standard mathematics classroom contexts, less is understood about how teacher noticing unfolds in technology-enhanced classrooms, against the backdrop of ensuring high-quality instruction in the age of digital transformation. In this study, I investigate what and how in-service mathematics teachers notice in technology-enhanced classrooms. Drawing on the framework of Pedagogical Technology Knowledge (Thomas & Hong, 2013), I focus on how teachers' mathematical knowledge for teaching, personal orientations, goals and technology instrumental genesis influence their noticing. In this presentation, I will present a case study of a secondary mathematics teacher drawn from my doctoral study. Data sources include lesson preparation artifacts, classroom observations, and a series of teacher interviews. The findings of this study may provide insights into high-level teacher noticing in technology-enhanced classrooms and inform the development of teachers' noticing expertise.

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