

1135-G1-1962

**Priya V Prasad\*** ([priya.prasad@utsa.edu](mailto:priya.prasad@utsa.edu)), Department of Mathematics, The University of Texas at San Antonio, One UTSA Circle, San Antonio, TX 78249, and **Steven Boyce** ([sboyce@pdx.edu](mailto:sboyce@pdx.edu)), Neuberger Hall, Room 334, 724 SW Harrison Street, Portland, OR 97207-0751.  
*Supporting prospective teachers' understandings of triangle congruence.*

We will discuss our collaborative efforts to design instruction to support prospective secondary mathematics teachers' (PTs') construction of mathematical content knowledge for teaching a "transformations-first" approach to triangle congruence criteria. We conducted a design experiment to support our students' understanding of the CCSSM standard: "Explain how the criteria for triangle congruence follow from the definition of congruence in terms of rigid motions." Our aim was to perturb our students' existing understandings of triangle congruence criteria so that they might construct transformational proof schemes for them (Harel, 2013). We conjectured that after learning that some Euclidean isometries are not isometries in the taxicab metric, our PTs would understand triangle congruence criteria in Euclidean geometry as a result of the properties of isometries and thus be better-prepared to support their future students in constructing that way of thinking about triangle congruence criteria. We will discuss how PTs went from interpreting congruence criteria as axiomatic to referring to the properties of Euclidean isometries in their justifications for the congruence criteria. (Received September 25, 2017)