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Kristin M Frank* (kristin.frank@asu.edu). *Examining the Role of Experiential Time in Students' Covariational Reasoning.*

To conceptualize variation a student must anticipate a quantity's measure taking on different values at different moments in time. While reasoning about time is essential for covariational reasoning, a student's conceptualization of time can inhibit him from engaging in covariational reasoning. In this paper I describe the results from ten clinical interviews with university precalculus students. I modeled the students' graphing schemes to detail the role of experiential and measured time in their reasoning. When students were able to substitute one quantity with their sense of experiential time they constructed a graph by tracking the continuous variation of the quantity's value while moving their pen left to right. When both quantities varied unsystematically so that neither could be substituted with experiential time, students coordinated measures of two quantities by plotting points and connecting the dots. Since covariational reasoning involves coordinating two varying quantities, anytime students reason with experiential time they do not engage in covariational reasoning. However, many problems involve quantities whose values increase monotonically. For students to engage in covariational reasoning we must re-think the types of relationships we ask students to reason about. (Received September 20, 2016)