

1056-P5-1101 **Stacey A. Bowling*** (stacey.bowling@asu.edu), 3678 E Yeager Ct, Gilbert, AZ 85295.

Investigating Student Conceptions of Function Composition. Preliminary report.

Existing research on function composition has focused on students' ability to solve function composition problems relative to the student's conception of function. However, little research has examined the mental actions and understandings needed to understand and use function composition meaningfully when solving novel problems. This research addresses this gap, investigating the reasoning that facilitates or impedes precalculus students' development of robust understandings of function composition. This study occurred in the setting of a precalculus class, with data collected both in the classroom and in clinical interviews with individual students. The precalculus course materials were research-based and designed from theories of quantitative and covariational reasoning. Data are presented that illustrate how conceptions of function composition are affected by students' mental images, quantitative reasoning, understandings of variable, and understandings of functional relationships and function representations. (Received September 20, 2009)