Problem-Centered, Developmental Mathematics: Diverse Responses to a New Instructional Approach
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Abstract

In recent years, reformers have pushed for the inclusion of more problem solving and group work in college developmental mathematics courses. Success rates from early implementations seem promising but provide little information about how these implementations differ from similar initiatives in K-12 schooling or how developmental students experience these classes. This talk examines these questions using data collected at one institution implementing problem centered developmental mathematics, with a focus on the observations from one classroom. Drawing from observation data, classroom audio, interviews, and survey responses, I examine students’ backgrounds and experiences in the class and create an innovative, quantitative representation of the teacher and students’ roles. I further elaborate on some of the tensions students experience as they work together to solve problems and learn the intended algebraic content. Differences in the experiences of the high and low-achieving students in the class are at least partially rooted in wide disparities in the students’ academic backgrounds and goals. This study illuminates critical challenges of productively implementing instruction centered around problem solving and group work in developmental mathematics courses and suggests that instructors may need to (1) help students better understand each other’s needs, (2) support students as they mediate large differences in mathematical backgrounds, and (3) leverage students’ backgrounds and goals when grouping students.

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