

1096-L1-913

**Daniel Lee Reinholz\*** ([reinholz@berkeley.edu](mailto:reinholz@berkeley.edu)). *Promoting Calculus Understanding Through Explanation and Reflection.*

This presentation draws on my dissertation study of learning in introductory college calculus. During the course of a two semesters of experimental intervention, students engaged with a variety activities designed to promote explanation and reflection. The core of the design was an activity called peer-assisted reflection (PAR). The purpose of PAR was to have students: (1) engage in meaningful problems, (2) reflect on their own work, (3) reflect on a peer's work and give/receive peer-feedback, and finally (4) revise their work based on insights gained throughout this cycle. Students in the experimental sections had considerably improved success rates (13% during phase I) and (23% during phase II) compared to other sections of the course. Students also had notable improvements in exam scores (up to 15% on common midterms). Finally, students in the experimental sections had considerably improved explanation abilities and developed productive dispositions towards learning mathematics. In this presentation I will provide an overview of the design, an analysis of student growth, and a discussion of theoretical insights. (Received September 11, 2013)