

Anchoring Proportional Reasoning in What Learners Know: It May Not Be What We Expect

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Abstract

Proportional reasoning has been described as “the capstone of elementary arithmetic and the cornerstone of all that is to follow” (Lesh, Post & Behr, 1988) and, as such, is an important way of reasoning to foster in community college developmental mathematics classrooms. The development of proportional reasoning in K–12 settings has been researched extensively. Adults’ quantitative reasoning in out-of-school contexts has also been explored and findings from these studies indicate that adults use many informal strategies for solving problems involving ratios and proportions. However, there has been little research that connects these two areas of inquiry. A first step towards making this connection is to ask, “What proportional reasoning abilities do adult learners placed into an arithmetic review course demonstrate *prior* to returning to school mathematics?” This article summarizes findings from a study that addresses this question and proposes implications for teaching and learning proportional reasoning in developmental mathematics classrooms. In particular, the variety of ways of reasoning that adult learners bring to developmental mathematics should be leveraged to support learners’ development of proportional reasoning and used as the foundation to develop a mathematically robust understanding of ratio, rate and proportion.



Ann Sitomer recently completed a postdoctoral scholar appointment at Oregon State University, where she worked with faculty members transforming teaching in large-enrollment introductory STEM courses. The findings reported in this article and her recent work with faculty shifted Ann's research focus from student learning to faculty learning about student learning. Ann is currently working on a project funded by the Spencer Foundation to design activities that support two-year college mathematics faculty members' sense-making and use of learners' mathematical contributions as a resource for learning in the classroom. Ann hopes to be back in community college classrooms soon!