Elise Lockwood*, elise.lockwood@oregonstate.edu, and Zackery Reed. Using a Categorization Activity to Develop Students’ Reasoning about Fundamental Counting Formulas.

In this talk, we describe students’ engagement with a set of tasks, which we call the Categorization Activity, that we used to help students to reason productively about four basic counting problem types and their formulas. In these tasks, students engaged in three kinds of activities: first, they initial solved 10-14 counting problems, then they sorted those problems into categories, and then they characterized those categories, expressing general formulas for each group of problems. We suggest that this instructional intervention is an effective alternative to other ways of introducing students to basic counting problems and formulas. We present data from both a paired and a small group teaching experiment with undergraduate students who were novice counters, and we discuss the ways that the students’ engagement in specific generalizing activities influenced their thinking. (Received September 07, 2019)