
Texas State University
1:00 pm in DERR 227
October 5, 2018

Examining Undergraduate Students' Generalizing Activity: Two Contrasting Cases from a Combinatorial Context

Dr. Elise Lockwood
Oregon State University

In this talk I provide two cases of students who solved a series of combinatorial tasks that were designed to facilitate generalizing activity. In these cases, each student spontaneously generated what externally appeared to be the same representation of a general outcome structure. However, upon further examination, the ways in which the two students understood and subsequently used the general representation differed significantly. I seek to explain these differences by identifying two types of relating that emerged in the study and by connecting this relating to Piaget's notion of reflective abstraction. By comparing and contrasting these students, we gain insight into the kinds of activity that promote both efficacious generalization and robust combinatorial reasoning. I conclude with implications and directions for further research.



Dr. Elise Lockwood received her Ph.D. from Portland State University in Mathematics Education in 2011. Lockwood's primary research interest involves undergraduate mathematics education, particularly studying how students think about and learn combinatorial topics. She has put forth a model of student's combinatorial thinking that especially emphasizes the role of sets of outcomes in effective counting. Other research in this area includes exploring student-generated connections among counting problems through a lens of actor-oriented transfer and determining the effectiveness of systematic listing in counting. Through two NSF-funded grants, She is currently investigating students' generalizing activity as they solve advanced counting problems, and she is studying ways in which having students engage in computational activity can help them solve counting problems more successfully. Two additional collaborations and areas of research include studying the role of examples in proof and considering the relationship between mathematical content and mathematical practices at all levels.

Next Friday, October 12: Graduate Student Presentations