Confronting Students’ Misconceptions by Analyzing Errors in Examples of Student Work
Nicholas Kirby and Jennifer Yantz, Austin Peay State University

Professors of introductory mathematics courses are often frustrated by students' lack of basic algebra skills that should have been mastered in high school. Common errors involve skills, such as combining like terms, applying the distributive property of multiplication over addition or subtraction, factoring polynomials, simplifying or combining rational expressions, and applying rules of exponents. These errors may hinder students' progress in mathematics courses. We sought to determine if remediation activities in which students examined, analyzed, and discussed errors in the work of other students would increase students' mathematical understanding and minimize these errors. We compare the quantity and pattern of errors on common assessments for a control and experimental section of college algebra and present evidence regarding the effectiveness of this pedagogical strategy.

Nicholas Kirby earned his bachelor’s degree in mathematics at Carnegie Mellon University in 2005. He completed his master’s degree and PhD in applied mathematics at the University of Kentucky in 2011. He then completed a postdoc appointment with the University of Washington-Seattle. He is currently an associate professor of mathematics at Austin Peay State University, where he specializes in research related to applied analysis and the mathematics of materials.

Jennifer Yantz earned three degrees from Middle Tennessee State University: a BS in mathematics in 1995, a MS in mathematics in 2010, and a PhD in mathematics education in 2013. She is currently an associate professor of mathematics at Austin Peay State University, specializing in mathematics education.