

ZMATH 2009f.00096

Hallagan, Jean E.; Rule, Audrey C.; Carlson, Lynn F.

Elementary school pre-service teachers' understandings of algebraic generalizations.

Mont. Math. Enthus. 6, No. 1-2, 201-206 (2009).

Summary: It is critical for all students to learn algebra, including the ability to generalize, to function in our increasingly complex world. This pretest/intervention/posttest study of preservice elementary teachers ($N = 63$) in their math methods course assessed their knowledge of writing and applying algebraic generalizations using instructor-made rubrics along with analysis of work samples and reported insights. Initially, although most subjects could solve a specific case, they had considerable difficulty determining an algebraic rule. After a problem-solving-based teaching intervention, students improved in their ability to generalize, however, they encountered more difficulty with determining the algebraic generalization for items arranged in squares with additional single items as exemplified by $x^2 + 1$, than with multiple sets of items, as exemplified by $4x$.

Classification: B50 E49 H29

Keywords: elementary algebra; generalizations; intervention; pre-service teacher education; educational research; subject content knowledge