“The Impact of Early Algebra on Students’ Algebra Readiness”

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2:30 – 4:00 p.m.
Harrington Tower 303

Abstract
Historical paths to algebra have been largely unsuccessful in preparing students for formal algebra and, as a consequence, the teaching and learning of algebra has undergone a critical transformation over the past couple decades. In contrast to the traditional “arithmetic-then-algebra” approach, current perspectives view algebra as a longitudinal, grades K–12 strand of thinking whereby students have long-term, sustained algebra experiences in school mathematics, beginning in the elementary grades. A fundamental assumption of early algebra education is that it will increase children’s understanding of and success with more formal mathematics, particularly algebra, as they progress into the middle grades—an assumption that, to date, is largely untested. Although early algebra research has provided important evidence regarding the development of children’s algebraic thinking, the majority of such research has not been sufficiently comprehensive in its treatment of early algebra content nor sufficiently longitudinal to measure long-term impacts. In this talk, I will present preliminary results from a project whose goal to measure the impact of sustained, longitudinal early algebra experiences on students’ mathematics achievement as they progress through elementary school into middle school.

Biographical Note
Eric Knuth is a Professor at the University of Wisconsin-Madison. His educational background includes a Ph.D. from the University of Colorado in mathematics education, a master’s degree in mathematics from San Diego State University, and a bachelor’s degree in electrical engineering from the University of Illinois. He recently completed a two-year term as the chair of the AERA Special Interest Group for Research in Mathematics Education, and is a former member of the NCTM Research Committee. His research concerns the development of students’ mathematical reasoning, with a particular focus on proof and algebraic reasoning. His current projects include The Role and Use of Examples in Learning to Prove (NSF DRK-12) and The Impact of Early Algebra on Students’ Algebra-Readiness (NSF DRK-12). His work has been published in the Journal for Research in Mathematics Education, Journal of Mathematics Teacher Education, Cognition and Instruction, and Teaching Mathematics in the Middle School, among others.