ABSTRACT

The aim of this CAREER project led by Amy Ellis at the University of Wisconsin is to explore the hypothesis that a curricular focus on quantitative reasoning in middle grades mathematics can enhance development of student skill and understanding about mathematical proof. The project is addressing that hypothesis through a series of studies that include small group teaching experiments with students, professional...
development work with teachers, and classroom field tests of curricular units that connect quantitative reasoning and proof in algebra.

Work of the project will produce: (a) insights into ways of unifying two previously disconnected lines of research on quantitative reasoning and proof; (b) models describing realistic ways to support development of students' proof competencies through quantitative reasoning; (c) improvement in students' understanding of algebra through engagement in proof practices based on quantitative reasoning; (d) insights into middle-school students' thinking as they negotiate the transition from elementary to more advanced mathematics; and (e) increased understanding of teachers' knowledge about proof and their classroom practices aimed at helping students progress towards understanding and skill in proof.

Please report errors in award information by writing to: awardsearch@nsf.gov.