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Award Abstract #0952415

CAREER: Supporting Students' Proof Practices Through Quantitative Reasoning in Algebra

NSF Org: [DRL](#)
[Division of Research on Learning in Formal and Informal Settings \(DRL\)](#)

Initial Amendment Date: March 9, 2010

Latest Amendment Date: March 9, 2010

Award Number: 0952415

Award Instrument: Continuing grant

Program Manager: Jinfa Cai
DRL Division of Research on Learning in Formal and Informal Settings (DRL)
EHR Directorate for Education & Human Resources

Start Date: March 15, 2010

Expires: February 28, 2011 (Estimated)

Awarded Amount to Date: \$100572

Investigator(s): Amy Ellis aellis1@education.wisc.edu (Principal Investigator)

Sponsor: University of Wisconsin-Madison
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MADISON, WI 53715 608/262-3822

NSF Program(s): DISCOVERY RESEARCH K-12

Field Application(s): 0116000 Human Subjects

Program Reference Code(s): SMET, 9177, 7645, 1045

Program Element Code(s): 7645

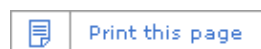
ABSTRACT

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.

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