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Eric D Weber* (webered2009@gmail.com) and **Marilyn P Carlson** (marilyn.carlson@asu.edu). *The Role of Homework in Developing Students' Mathematical Conceptions*. Preliminary report.

The rate at which the United States has lost students in STEM majors has proven so severe that policymakers are calling for colleges and universities to understand and address the problem (Business Higher Education Forum, 2007). In many courses, advanced mathematical learning takes place outside of the classroom (NCTM, 2000). However, a review of major science and mathematics education literature reveals there are currently no studies that evaluate how the design of out of class assignments elicits specific reasoning patterns in students. After developing new materials for teachers of pre-calculus it was apparent that homework was an area of learning to which many textbooks, and researchers had paid little attention. This investigation proposed to study homework's role in developing students' mathematical conceptions within pre-calculus and calculus courses. The ongoing study aims to give insight into how both teachers and students use homework as learning tool, to provide a window into the appropriate content of homework problem sets, and how to engage students in order to promote spontaneous and creative methods of problem solving while outside a formal classroom setting. (Received August 27, 2009)