

1116-VD-2401 **Kathryn Rhoads*** (kerhoads@uta.edu), **James A. Mendoza Epperson** and **R. Cavender Campbell**. *Mathematical Problem Solving Item (MPSI) Development Project*. Preliminary report.

Nationwide, high failure rates in foundational undergraduate mathematics courses, such as college algebra and calculus, indicate that the current focus on procedural knowledge and skills is ineffective for many students. Instead, researchers have argued that a primary goal of mathematics instruction should be for students to develop problem solving skills (e.g., Schoenfeld, 1992). However, most university exams lack assessment of students' mathematical problem solving (MPS), and no efficient tools exist that provide an inventory of students' MPS skills.

The purpose of the MPSI Development Project is to create a pool of problems and associated assessment items that can measure students' MPS in five key areas that we have identified through previous research (Campbell, 2014). We propose that valid and reliable MPSI items can provide an efficient and less costly means for researchers to answer key questions for the learning and teaching of MPS in undergraduate mathematics. In this paper, we report on the ongoing development and refinement of MPSI items, including the piloting of items through a pre- and post-assessment design with over 500 students enrolled in college algebra or calculus. This research is partially supported by NSF DUE grant no. 1544545. (Received September 22, 2015)