Gadsden Math Initiative (#0096674)

The Miracle District - The Gadsden School District and New Mexico State University received a Teacher Enhancement Grant in 2000 to help improve mathematics achievement. At the time Gadsden was 88th out of 89 New Mexico Districts in math achievement. At the end of the grant in 2006 the district ranked 32nd of the 89 districts. P.I. Yvonne Lozano, CO-PIs Wanda Bulger-Tamez, Karin Wiburg. Cathy Kinzer

Results: Increases of Mathematics Achievement in this district have continued, even 8 years after funding ended for this district. Students in Gadsden (95% Hispanic and 100% Title I) continue to out-rank students in the same grade level in neighboring and often more wealthy districts. Today Gadsden ranks 12th in math achievement among middle-schools in NM. The grant supported a systems approach and involved all administrators and teachers with in-depth training in mathematics content and pedagogy followed by classroom researcher monitoring and guidance. This Gadsden Math Initiative (GMI) Model has been used within Mathematically-Connected Communities (MC²) professional development projects over the last 10 years. The current MC² project is operating in 19 research districts and is funded by the NM Public Education Department and the U.S. Dept. of Education MSP Grant.

NMSU STEM Outreach Center

The STEM Outreach Center has served 36,000 students in after-school and summer workshops and activities involving STEM since 2009. The STEM Center has received the following NSF grants:

- 2010-2016 Science Teachers Acquired Through New Directions in New Mexico (STAND-NM) (NSF#0934919): STEM undergraduates minor in secondary education and follow a Noyce STEM pathway to NM licensing. P.I. Dr. Susan Brown
  Results: 12 graduates per year promised to teach secondary science two years in NM for every one year they are supported.

- 2006-2009 STAND-NM: Graduate Level: (NSF#0924919) STEM graduates follow a Noyce STEM pathway to NM licensing. P.I. Dr. Susan Brown
  Results: 6 graduate students each year commit to teaching secondary science for two years for every year in the program.

- 2010-2016 DISSECT (DIScover Science through Computational Thinking): Graduate computer science students (8-12 per year) spend 2 days in the classroom with partner teachers designing and implementing lessons with computational thinking threaded throughout the STEM content areas. Computational thinking integrated in science teaching. P.I. Dr. Susan Brown
  Results: 9 graduate students each year work with 9 teachers to integrate computational thinking across the curriculum.

- 2007-2011 Stone Age to Space Age: (NSF#0639269) 275 Fifth grade students earned 150 out of school STEM hours in a three year period (from 5th to 7th grade) We offered Saturday opportunities, summer camps, and field trips. P.I. Dr. Susan Brown
  Results: Students who participated in the center’s after school programs scored significantly higher on the science portion of the NMSBA than students who did not participate. They also scored higher in Math.
Mathematics and Teacher Education [240x22 to 416x72]

MATHEMATICALLY CONNECTED COMMUNITIES: MC2-LIFT (#00928867)

MC2 - Leadership Institute for Teachers. This Math Science Partnership between mathematicians, math educators, and five high-need districts supported K-12 teachers in deepening their mathematical content knowledge, while enhancing pedagogical and leadership skills. Teacher leaders were supported in their own classrooms and schools, by mentors from a School Support Team. Extensive design-based research lead to successive improvements in the program.

Results: The Curriculum and Instruction (C&I) Department graduated two cohorts of teachers (N= 60) with a Master’s of Arts in Teaching Mathematics. These graduates’ (most who still remain in the classroom) serve as Teacher Leaders at their schools and districts. P.I. Pat Morandi and Wanda Bulger-Tamez.


Math Snacks was developed to address well-researched gaps in mathematics learning for all kids in grades 3-8 using games, animations, and inquiry. Interdisciplinary development with extensive testing and re-testing led to a powerful intervention for kids in grades 3-7. The Math Snacks Intervention includes animations, games, learning materials and professional development videos for teachers. Random control trials with 800 students showed that using Math Snacks leads to significant gains in math knowledge when compared to students without access to Math Snacks. Current research on learning supports the use of multimedia and inquiry to improve student learning, transfer, and retention as practiced in this project. P.I. Karin Wiburg.

Math Snacks Marketplace (NSF#1313564)
The Math Snacks team received an I-Corp grant in 2013 to explore the possibility of introducing Math Snacks to the commercial market.

Results: Through this process, Math Snacks has succeeded in establishing numerous distribution partnerships, however the cost of development and the desire to keep Math Snacks materials free to teachers and students prevent commercialization at this time. P.I. Dr. Karen Trujillo

SUMA – Scaling Up Mathematics Achievement (NSF# 0733690)
This grant applied the GMI model to a larger district and used design-based research to study the process.

Results: English Language Learners made large gains in mathematics learning during this project. Changes in the model were developed that included the importance of having clear agreements and action plans with partner districts for research-based initiatives in STEM to succeed. P.I. Dr. Cathy Kinzer