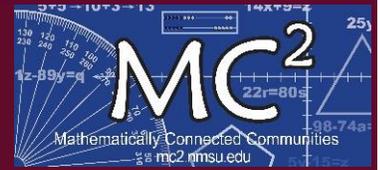


MC² Research and Impact 2016-2017 Executive Summary

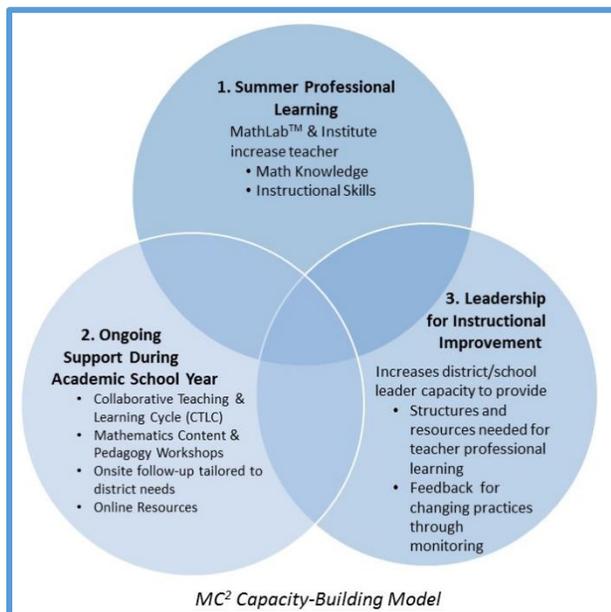


Research Question

How does the enactment of the Mathematically Connected Communities (MC²) Capacity-Building Model impact changes in teacher practice and student achievement?

Data Collection and Analysis

MC² uses various types of data to plan, assess, and evaluate professional learning. These data inform the design and delivery of future professional learning to have greater impact on classrooms, schools, and districts.



These methods are used to evaluate professional learning outcomes:

- **MathLab™ Participant Evaluation:** Reflects initial satisfaction/usefulness of professional learning
- **Summer Institute Participant Evaluation:** Reflects participant perceived understanding of math content and how to best promote deep math understanding in their students
- **Collaborative Teaching and Learning Cycle (CTLC) Feedback Form:** Reflects what transpires during planning, enactment, and review of specific lessons; usefulness of CTLC process; and challenges encountered

- **Group Professional Learning Evaluation Form:** Reflects professional learning outside of CTLC consisting of a Likert-scale evaluation on professional learning objectives and participant-generated statements regarding their planned action steps
- **MathLab™ Participant Pre-/Post-Assessments:** Developed by partner mathematicians and MC² staff; same assessment is used as pre and post to determine change in participant pedagogical math content knowledge
- **Math Institute Participant Post-Assessments:** Same MathLab™ post-assessment is used to determine change in participant pedagogical math content knowledge as the result of attending this additional week-long MC² summer professional learning opportunity
- **MC² Mathematics Education Specialist Reflection of Practice:** Three times yearly, Education Specialists report evidence of influence/impact of professional learning at school sites; Reflections are then analyzed by MC² Research Team through the lens of the MC² Capacity-Building Model
- **Observation of Learning Environments (OLE2) Instrument:** Documents changes in teaching practice, student behaviors, and interactions within the mathematics learning environment; Determines if what is shared in MC² professional learning sessions is reflected in what is happening in classrooms
- **Administrator Surveys:** In spring, partner district administrators complete survey on impact MC² is having on teacher practices and professional learning at their schools

"Classroom practices leading to a better focus on standards-based teaching have consistently occurred with those who attended Summer MathLab™ AND worked with continued school and classroom level support from MC² staff. Student performance on the PARCC assessment is evidence of that standards-based teaching and focus on the mathematical practices."

– Partner District Administrator

These methods are used to evaluate student learning outcomes:

- **Partnership for Assessment of Readiness for College and Careers (PARCC) District Results:** MC² Research Team examines assessment results to identify student achievement trends by analyzing scores and strengths/weaknesses in student learning
- **School Accountability Report Cards:** Determine school ratings based on PARCC, End-of-Course Exam results, and other data collected by New Mexico Public Education Department; Used as District Leadership Team reflection and to inform school action plans in improving student math learning

At a Glance

New Mexico Partner Districts	17
New Mexico Educators Impacted	1,016
Students Impacted	≈30,500
Summer 2016 MathLab™	
Regional Locations	Artesia, Las Cruces, Pojoaque, Los Lunas, Gallup
Teacher Participants	322
Student Participants	344
Summer 2016 Leadership Academies	
Regional Locations	Las Cruces, Los Lunas, Pojoaque
District/School Leader Participants	48
Summer 2016 Math Institute	
Statewide Location	Las Cruces
Participants	38
Ongoing Support During School Year	
Teacher Leader Cadre Members	37
Content Workshop Attendees	≈125
On-site Participants	656
Webinar Total Views	580

Impact and Findings

Increased Effective Mathematics Teaching/Learning:

- Random sample of teachers participating in MC² 2016 Summer Professional Learning received rating of 2.44 on *General Level of Implementation* scale of 0 to 4 compared to baseline data for teachers not participating in MC² professional learning who received an average rating of 1.8
- Teachers were most proficient in the following:
 - Sharing and maintaining lesson goals/targets with students
 - Supporting students making sense of the math by using their communication of ideas and student work
 - Asking questions focused on students' conceptual understanding of mathematics

- PARCC assessment data indicate gains in MC² partner districts as compared to the state average in grades 3 through Geometry:
 - 68% scored at or above state average; 62% of these met proficiency by 5% or more above state average
 - 64% showed gains in math proficiency; whereas, state math proficiency rate for the same time period did not change
- Ninety percent of administrators said that teacher attendance in MathLab™/Institute had positively impacted classroom practice

Impact of Teacher Leader Cadre (TLC):

- Provided university faculty and staff with classroom “laboratories” to study children's learning and effective teaching practices
- Convened monthly with mathematicians and math educators to build leadership skills, engage in rich study of mathematics from CCSS-M progressions, and design professional learning experiences for teachers
- Field tested math lessons in classrooms in partnership with mathematicians and math educators for use in summer MathLab™ and regional content workshops
- Facilitated district-based professional learning which impacted additional 250 teachers in partner school districts



Creation of Principal Leader Cadre:

- Strengthened MC² Model for systemic change
- Successfully established school culture of professionalism, collaborative support, and high expectations for math teaching/learning
- Designed Leadership Framework to support other principals in creating effective math program fostering teacher professional learning and children's conceptual understanding of math
 - Culture of Kindness, Collaboration, and Learning
 - Clarity of Purpose
 - Professional Learning Structures/Systems
 - Reflection (based on data)
 - Clear Communication