

A Lesson Study Project:
Connecting Theory and Practice
Through the Development of an
Exemplar Video for Algebra I Teachers
and Students

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Dr. Anne Papakonstantinou

RUSMP Director

MLI Director & Co-PI

apapa@rice.edu

Mr. Richard Parr

RUSMP Director of Curricular & Instructional Programs

MLI Manager

rparr@rice.edu

Ms. Monica Kendall

HISD Director of Secondary Mathematics

MLI Co-PI

mkendall@houstonisd.org

Rice University School Mathematics Project (RUSMP)

- Provide a bridge between the Rice University mathematics research community and Houston-area mathematics teachers
- Help teachers and administrators better understand the nature of mathematics, the effective teaching and assessing of mathematics, and the importance of mathematics in today's society
- Founded on the belief that sustained instructional changes can best be supported through the development of professionalism among teachers

RUSMP Goals

- Increase the mathematical knowledge of Houston-area teachers
- Promote and model effective teaching and assessment of mathematics with active student involvement in the learning process
- Encourage the appropriate use of technology and manipulatives in the teaching of mathematics

RUSMP Goals

- Provide an awareness of minority and gender issues
- Provide strategies to actively engage struggling students, English language learners, and underrepresented minorities in learning mathematics
- Understand and promote research-based teaching and learning of mathematics

RUSMP Goals

- Form a local mathematics education network to implement national, state, and local reform efforts in mathematics education
- Develop mathematics teachers' leadership capacity
- Create innovative curricula in mathematics
- Advise developers of mathematics programs and curricula

Houston Independent School District

- Largest public school system in Texas
- Seventh largest public school system in the United States with nearly 200,000 students and 12,000 teachers
- First recipient of the Broad Prize for Excellence in Urban Education (2002)

Demographic Comparison HISD with State of Texas

	HISD	Texas
Hispanic	61%	48%
African-American	28%	14%
Anglo	8%	34%
Asian	3%	4%
American Indian	<1%	<1%
Economically Disadvantaged	81%	57%
Limited English (LEP)	31%	17%
At-Risk	68%	48%

Rice University Mathematics Leadership Institute (MLI)

- Develop a cadre of 80 lead teachers in mathematics in the two partner school districts
- Establish a leadership program at individual campuses to provides mathematics content and pedagogical support for the ***entire*** mathematics department at that campus

Lesson Study Project

- Motivation for the project
- District-wide walk-through observations of all Algebra I teachers
 - 279 Algebra I teachers
 - 39 high schools

Lesson Study Project

- Rice University School Mathematics Project's role
- MLI's role
- Why lesson study

Lesson Study

- Study curriculum and formulate goals
- Plan
- Conduct research
- Reflect
- Replicate

Lewis, Perry, and Murata 2006

Lesson Study Project

- MLI lead teachers' role
- Lesson selection, development, and refinement
- Taping and production of the exemplars video

Lesson Study Project

- District-wide professional development to support the project
 - Across the district concurrently with video production

Lesson Study Project

- The exemplars video "*Mathematics in Motion*" (*Best Practices in Algebra I*)
- Use of the lesson study protocol in schools to develop additional lessons

Lesson Study Project's Impact

- District
- Teachers
- Students

Accolades

The video "*Mathematics in Motion*" (*Best Practices in Algebra I*) received a 2009 Texas School Public Relations Association (TSPRA) Gold Star Award for excellence in school communications.

Rice University School Mathematics Project

<http://rusmp.rice.edu>

Houston Independent School District

<http://www.houstonisd.org>