



**SIG/Research in Mathematics Education**  
**American Educational Research Association**

**Winter 2003 Newsletter**

<http://www.sigrme.org>

**SIG/RME Executive Board**

**Co-Chairs**

Linda Ruiz Davenport  
Boston Public Schools  
2001-2003

Dan Chazan  
University of Maryland  
2002-2004

**Treasurer**

Cynthia Langrall  
Illinois State University  
2002-2004

**Recording Secretary**

Denise S. Mewborn  
University of Georgia  
2001-2003

**Electronic Communications Secretary**

(appointed)

Jeff Shih  
University of Nevada  
2002-2003

**Steering Committee**

Alfinio Flores  
Arizona State University  
2001-2003

Vic Cifarelli  
University of North Carolina-Charlotte  
2002-2004

**What's Inside**

Election results	p. 1
Early career award recipient	p. 2
Annual business meeting	p. 2
SIG/RME Invited Address at AERA	p. 2
Show-me workshop	p. 2
AERA sessions	p. 3
RAC sessions at NCTM	p. 21
NSF center fellowships	p. 26

**Election Results**

Congratulations to the newly elected officers:

Co-Chair

Randy Philipp  
San Diego State University

Recording Secretary

Nancy Mack  
Grand Valley State University

Steering Committee

Patricio Herbst  
University of Michigan

Electronic Communications Secretary

Cengiz Alacaci  
Florida International University

We appreciate their willingness to serve the organization for the next 2 years. We extend our thanks to outgoing officers Linda Ruiz Davenport, Jeff Shih, Alfinio Flores, and Denise Mewborn for their leadership and service to SIG-RME.

### **Herbst Receives Research Award**

Patricio Herbst of the University of Michigan will receive the second annual SIG/RME Early Career Publication Award for his work titled "Establishing a custom of proving in American school geometry: Evolution of the two-column proof in the early twentieth century," which appeared in *Educational Studies in Mathematics* in 2002. According to the reviewers, his paper provides a rich historical account of the evolution of the two-column proof as a custom of American high school geometry, from its early 20th century role as a means through which students might master the 'art of demonstration' and continuing to the time that it became the prime objective and centerpiece of the high school geometry curriculum. Drawing from the history of past reform movements, Dr. Herbst argues that while an emphasis on proving brought stability to the study of geometry, the focus on students' "learning to prove" came about at the expense of reducing students' participation in the development of new ideas. Hence, he argues, we need to exercise great care as we deliberate over the role of proof in our modern-day reform-based classrooms. In recognition of his work, Patricio will receive a \$500 check and a plaque. The complete citation for the paper is as follows:

Herbst, P. G. (2002). Establishing a custom of proving in American school geometry: Evolution of the two-column proof in the early twentieth century. *Educational Studies in Mathematics*, 49(3), 283-312.

### **Annual Business Meeting**

The SIG-RME annual business meeting will be held Wednesday, April 23 from 6:15 - 7:45 in the Swisshotel, Alpine 2, Ballroom Level. See the program for a map showing the location of the hotel. The business meeting will conclude with a reception. All members are strongly encouraged to attend and bring another potential SIG-RME member (such as a graduate student).

### **SIG/RME Invited Address at AERA**

The SIG/RME invited address will be delivered by Paul Black, Emeritus Professor of Science Education at King's College London. The presentation is entitled "*Turning Research Results into Practice: How Does the D Fit into R&D?*" and will be presented Monday, April 21, 2:15 PM--3:45: PM at the Hyatt, Columbus Hall I/J, East Tower - Gold Level.

### **Reminder**

Please remember that AERA members now pay their SIG-RME dues when they renew their AERA memberships annually. See the SIG-RME web site for a detailed description of membership policies. If you wish to be a member of SIG-RME only, please download the membership form from the SIG-RME web site and send the form and dues to Cindy Langrall. All SIG-RME members are strongly encouraged to be members of AERA as program spots are allocated based on membership in SIG-RME and AERA.

### **Thank You**

Special thanks go to Salli Park and Bernice Peters of the University of Georgia Department of Mathematics Education for their assistance with the newsletters and directory the last two years. They have graciously and competently managed all of the logistics that go into getting the newsletters printed and mailed three times a year.

### **Show-Me Project Workshop**

In an effort to stimulate additional research on the impact of standards-based curriculum materials, the Show-Me Project is sponsoring a "Show-me Researchers' Workshop" May 18-21 at the University of Missouri in Columbia, MO. Support (up to \$800) is available for interested researchers, including doctoral students. There is room for an additional 20 participants who pay their own expenses. The workshop announcement, agenda, and application form are available on the project web site at

<http://showmecerter.missouri.edu>.

## AERA Sessions Related to Mathematics Education

April 21-25, 2003

Chicago, IL

<http://aera.net>

The following pages contain information regarding sessions sponsored by SIG/RME, Division K, Section 1 (Mathematics and Science Teaching and Teacher Education), and Division C, Section 3 (Mathematics Learning and Instruction) by day and time. Please check the AERA web site for the most current information regarding room assignments and scheduling.

### MONDAY

#### 12:00-1:30

#### **Interactive Symposium: Comparative Pedagogy of Group Comparison in Data Analysis**

Session Chair: James K. Hammerman, TERC

Discussant: Michael Shaughnessy, Portland State University

- *Using Developing Mathematical Ideas (DMI) cases to explore group comparisons*; Elham Kazemi, Gini Stimpson, Andrea Levy, University of Washington.
- *Software representations as a tool for group comparisons*; Cliff Konold, University of Massachusetts, Amherst.
- *Design experiments using group comparisons to focus on issues of distribution and aggregate attributes*; Jose Luis Cortina, Paul Cobb, Vanderbilt University.
- *Teachers' collaborative inquiry about the statistics and pedagogy of group comparisons*; James K. Hammerman, Andee Rubin, TERC.

#### 12:00-2:00

#### **Interactive Symposium: Making Teaching Public: Studying Teacher Thinking Using Video Techniques**

Chair: Kevin F. Miller, University of Illinois at Urbana-Champaign

Discussant: Andrew Isaacs, University of Chicago

- *Repetition is wonderful?: American and Chinese teachers' views of teaching and learning mathematics*; Linda Sims, Christopher Correa, Xiaobin Zhou, University of Illinois at Urbana-Champaign
- *First and Foremost: Examining Lesson Introductions by Chinese and American Elementary School Mathematics Teachers*; Christopher Correa, Kumar, Linda Sims, University of Illinois at Urbana-Champaign
- *You Tell Me I'm Just the Teacher: Authority and Autonomy in American and Chinese Mathematics Classrooms*; Marc McConney, University of Illinois at Urbana-Champaign
- *I see you doing some thinking: the use of visual forms to convey mathematical meanings in early mathematics instruction*; Lucia Flevares, University of Illinois at Urbana-Champaign
- *No Matter How You Slice It: Perception of Teachers' Personal Attributes and Instruction from Thin Slices of Classroom Videos*; Xiaobin Zhou, University of Illinois at Urbana-Champaign

### **12:00-1:30 Poster Session**

- *Linking Teachers' Embedded Traditions to Students' Images of Mathematics.* Rong-Ji Chen; Bridget Arvold; University of Illinois at Urbana-Champaign;
- *Using Online Discussion Forums as Professional Development to Further Teachers' Understanding of Students' Mathematical Thinking.* Jeffrey C Shih; UNLV

### **12:00-2:00**

#### **Symposium: Using Information Technology to Improve Math and Science Teaching and Learning**

Session Chair: Janie Schielack; Texas A&M University

Discussants: Andrew Stricker; Vanderbilt University

- *Information Technology in Science Center for Teaching and Learning: Producing "New Generation" Science Education Leaders;* Cathy Loving; Texas A&M University
- *Engaging Classroom Teachers in Authentic Science Research;* Lawrence R. Griffing; Texas A&M University
- *Investigating the Impact of Authentic Science Experiences on Participants' Beliefs and Understandings;* Jennifer Parrott; Britta Thompson; Texas A&M University
- *Using Action Research to Bridge the Gap Between Science and Educational Research;* Stephanie L. Knight; Texas A&M University
- *Designs of Learner-Centered Information Technology in Science Interventions via Teacher Inquiry: A Synopsis;* Carol L. Stuessy; Texas A&M University

### **2:15-3:45**

#### **Paper Session: Preservice Teacher Preparation in Science and Mathematics**

Session Chairs: Robert E Bleicher; California State University Channel Islands

Discussants: Elizabeth A Davis; University of Michigan

- *Preservice Teachers' Development and Implementation of Science Performance Assessment Tasks;* Judith A Morrison; WSU; Amy McDuffie; WSU; Valarie Akerson; Indiana University
- *"What" and "How" Does a Mentor Teacher Learn During a Secondary Science Teacher Candidate's Internship?* Scott A Ashmann; Illinois Institute of Technology
- *Effects of Contextualized & Decontextualized Nature of Science Instruction on Teachers' Practices.* Michael P Clough; Joanne K Olson; Iowa State University
- *Reform Teaching Practices in Undergraduate Mathematics and Science Classes.* James B Carroll; University of Portland; Patricia D Morrell; University of Portland
- *Blending Mathematics Learning with an Early Field Experience: What Do Prospective Elementary School Teachers Learn?* Rebecca C Ambrose; San Diego State University; Cheryl Vincent; Santee School District

### **2:15-3:45**

#### **SIG/RME Invited Address: Turning Research Results into Practice: How Does the D Fit into R&D**

Paul Black, King's College, London

**2:15-3:45**

**Paper Session: Using Practice-Based Tools for Professional Development with Mathematics Teachers**

Session Chairs: Daniel S Battey; UCLA

Discussants: Michele Crockett; University of Illinois

- *In pursuit of flexible teaching: How mathematics teachers 'learn to notice' in the context of a video club.* Elizabeth A van Es; Northwestern University:
- *Individual Interviews as a Window into Teachers' Practice: A Framework for Understanding Teacher-Student Interactions during Mathematical Problem Solving.* Victoria R Jacobs; Rebecca C Ambrose; San Diego State University
- *Taking advantage of openings in the curriculum to promote teachers' learning from cases;* Melissa D Boston; University of Pittsburgh
- *Using Records of Teaching to Learn about the Use of Instructional Representations in Elementary Mathematics Teaching.* Rhonda B Cohen; Deborah L Ball; University of Michigan

**2:15-3:45**

**Interactive Symposium: Exploring the Impact of Different Algebra Programs on Students' Mathematical Attitudes and Achievement: Year One Results from the Stanford Mathematics Teaching and Learning Study**

- *Comparing Mathematical Approaches: Equity, understanding, and achievement;* Megan Staples and Tobin White
- *Investigating mathematical identities;* Melissa Gresalfi and Emily Shahan
- *The centrality of teaching in mediating curriculum;* Jo Boaler and Karin Brodie

**2:15-3:45**

**Paper Session: Technological Tools And Cultural Resources For Student Learning In Mathematics**

- *Appropriation of Graphics Calculators for Learning and Problem Solving;* Patricia A Forster, Edith Cowan University
- *High School Latino Students' Mathematical Meaning Making Using Multiple Modalities;* Hector Morales, University of Illinois at Chicago
- *Writing and Storytelling in Mathematics Education: Empowerment for Latino Students;* Shawn Quilter, Cristina Jose-Kampfner, Eastern Michigan University

### **3:05-3:45 Paper Discussions (i.e., Roundtables)**

#### **Exploring Practice, Knowledge, And Disposition In Math And Science**

- *Exploring The Integration Of Caring Practices To Develop Pre-Service Early Childhood Teachers' Strategies For Teaching Science And Mathematics*; Ithel Jones; Vickie E. Lake; Florida State University:
- *In-service and Pre-service Teachers' Ability to Detect Mathematical Errors*. Rebecca R Robichaux; Southeastern Louisiana University; Polly Rodrigue; Nicholls State University; Anthony J Guarino; Auburn University
- *The Functionality Of Graphical Representations: Contexts Within Which Preservice Teachers Construct Graphical Representations*. Aisling M Leavy; MIC – University of Limerick
- *Mathematics Teacher Dispositions and Possible Assessment Measures*. Bridget Arvold; University of Illinois at Urbana-Champaign
- *Arguing the Limitations of Evidence in Middle School*. Cynthia C Szymanski Sunal; Dennis W. Sunal; University of Alabama
- *The Use of Retrospective Pretests for Measuring Mathematics and Science Teaching Efficacy Beliefs in Preservice Teachers*. Pamela Cantrell; University of Nevada, Reno

### **3:05-3:45 Paper Discussions (i.e., Roundtables)**

#### **Teacher Learning In Mathematics**

- *Promoting Mathematics Learning through Problem-Based Instruction*. Juliann L Johnson; University of Texas at Arlington
- *An Evaluation of Innovative Mathematics Preparation Initiative Program: A Joint Program Of California State University, Los Angeles And Los Angeles Unified School District*. Deborah Oh; California State University, Los Angeles; Fred Uy
- *Influences of Critical Reflection and Field Experiences on Mathematics Teaching: A Preservice Elementary Teacher Development Initiative*. Thea K Dunn; University of Wisconsin-River Falls:
- *Use of Conceptually Based Mathematics Curricula for Professional Development of Teachers*. Janice Grow-Maienza; Sam Minner; Scott Olsen; David Bethel; Truman State University
- *Presevice Teachers' Voices and Discourses of Mathematics: Implications for Teacher Education*. Camille Cammack; Saginaw Valley State University
- *Developing Alternative Strategies for Educational Equity*. Marisol A Rodarte; UC Santa Barbara

**4:05-5:35**

**Symposium: Alternative Ways of Measuring Classroom Practice: What Are We Learning?**

Session Chair: Alicia C Alonzo; RAND; University of California, Berkeley

Discussants: Edward A Silver; University of Michigan, Richard J Shavelson; Stanford University

- *Teacher Logs and the Study of Instructional Improvement*, Deborah L. Ball; Brian Rowan; University of Michigan
- *Vignette-Based Surveys and the Mosaic II Project*; Vi-Nhuan Le; Brian Stecher; Laura Hamilton; Gery Ryan; Valerie Williams; Abby Robyn; Alicia C Alonzo; RAND; University of California, Berkeley
- *Instructional Artifact Packages and the Impact of State Accountability on Classroom Practices Project*; Hilda Borko; University of Colorado, Boulder; Brian Stecher; RAND; Alicia C Alonzo; RAND; University of California, Berkeley; Sherie McClam; University of Colorado, Boulder

**4:05-5:35 New Member Poster Session**

- *Teacher Intern Experiences with Self-Assessment in an Elementary Mathematics Methods Course*. Ming C Tomayko; University of Maryland

**TUESDAY**

**8:15-10:15**

**Symposium: Theoretical and Practical Issues Concerning the Uses of Video in Professional Development for Mathematics**

Discussant: Miriam Sherin, Northwestern University

- *Using the unfamiliar to problematize the familiar*; Abraham Arcavi; the Weizmann Institute of Science; Alan Schoenfeld, University of California, Berkeley.
- *Professional development in context: Workshop ideas embedded in practice*; Alan Schoenfeld, University of California, Berkeley.
- *Professional background as a source of perceptions: An examination of what teachers “see” in video clips*; Natasha Speer, Michigan State University.
- *Framing interactions to focus on teachers' beliefs and practices*; Sandra Wilcox, Michigan State University; Elizabeth Jones, Lansing (MI) Public Schools.

**9:05-9:45**

**Paper Discussion Session: Examinations of Mathematics Teacher Development and Mathematics Teaching**

- *From college freshmen to secondary mathematics teachers: Longitudinal case studies based on an analysis of knowledge, beliefs, goals, and behaviors*; Alice F Artzt, Frances R Curcio, Queens College of the City University of New York.
- *Mathematics learning and teaching: Beliefs of elementary teachers from Australia, Hong Kong, Mainland China, Philippines, Singapore and Taiwan*; Peter Howard, Australian Catholic University; Bob Perry, University of Western Sydney.
- *The professional knowledge of elementary mathematics teachers: Its structure and internal relationship*; Tao Xin, Teachers College; Zheng Zhou, St. Johns University.
- *Mathematical representations and pedagogical content knowledge: An investigation of prospective teachers' development*; Robin A Ward, Cynthia O. Anhalt, Kevin D. Vinson, University of Arizona.
- *Effects of educational opportunity on the intraschool distribution of eighth grade mathematics achievement in the U.S. and Korea: Multilevel analyses of TIMSS*; Carol M Smyth, Graduate Center - City University of New York; T. Mark Beasley, University of Alabama at Birmingham.
- *Anchored instruction, an environment for integrating formal and symbolic knowledge in fractions, a case of instructional design*; Teruni D Lamberg, Vanderbilt University; James A Middleton.

**10:35-12:05**

**Symposium: Systemic Crossfire: Examining Tensions Between Content-Based Reforms and High Stakes Tests in Mathematics**

- *Model-data fit studies of the Texas Assessment of Academic Skills: Implications for the content validity of the tests across student groups and school types*; Jere Confrey, Katie Makar, David Carrejo, Sibel Kazak, University of Texas at Austin.
- *Incoherence in the content-based information from high stakes provided teachers for instructional decision-making*; Jere Confrey, David Carrejo, University of Texas at Austin.
- *Listening to students: Interviews with urban high school students about TAAS with commentary by researchers, parents and community members*; Jere Confrey, David Carrejo, Katie Makar, Sibel Kazak, University of Texas at Austin.
- *Teachers' inquiries into high stakes data using statistics software*; Jere Confrey, Katie Makar; University of Texas at Austin.



**10:35-12:05**

**Paper Session: Analyzing Classroom Interaction as Opportunities for Teacher Learning in Science and Mathematics**

Session Chair: Kent Seidel; University of Cincinnati

Discussant: Susan Empson; UT Austin

- *What Happens When the Problem Isn't Solved in Five Minutes?* Helen M Doerr; Syracuse University
- *Autonomy and Teacher Learning*; Janet E Warfield; Illinois State University
- *Interaction and classroom communities: The implications of classroom rules, roles and objectives for scientific inquiry*; Jennifer S Goldberg; Noel Enyedy; UCLA
- *Resolving a teaching dilemma in a third grade classroom community: Developing reflective mathematical discourse*; Ellice A Forman; Ellen Ansell; University of Pittsburgh

**12:25-1:55**

**Interactive Symposium: Mathematics Lessons in Germany, Japan, the USA and Australia: Structure in Diversity and Diversity in Structure**

Session Chair: David J Clarke, University of Melbourne

Discussant: Jeremy Kilpatrick; University of Georgia

- *Issues of Voice and Variation: Developments in International Comparative Research in Mathematics Education*; David Clarke, University of Melbourne; Harsh Suri, La Trobe University.
- *Capturing the structure of Japanese mathematics lessons*; Yoshinori Shimizu, Tokyo Gakugei University.
- *Lesson patterns in three German mathematics classrooms*: Eva Jablonka, Free University Berlin.
- *The structure of mathematics lessons in the United States*; Joanne Lobato, San Diego State University; Carmel Mesiti, University of Melbourne.
- *The structure of mathematics lessons in Australia*; David Clarke, University of Melbourne.

**12:25-1:55**

**Paper Session: Teacher Beliefs and the Teaching of Mathematics and Science**

Session Chairs: Elana Joram; University of Northern Iowa

Discussants: Christine L Ebert; University of Delaware

- *Past Lives in the Present: An Inquiry into the Historical Dimensions of Teachers' Practical Knowledge*; Roland W Mitchell; Jerry L Rosiek; University of Alabama
- *The Impact of Early Life History on Teachers' Beliefs about Teaching and Learning: Out-of-School Experiences as Learners and Knowers of Science*; Leigh K Smith; Brigham Young University
- *How do Chinese science teachers' conceptions of inquiry-based science*; BaoHui Zhang; University of Michigan; Joseph S Krajcik; Lei Wang; Jihua Hu; Yangyi Qiang
- *The Terrarium Unit: A challenge to teachers' concepts of what is science teaching*; Allan G Harrison; Reyna Zipf; Central Queensland University

12:25-1:55

**New Member Poster Sessions**

- *A Situational-Representational Didactic Design for Fostering Conceptual Understanding of Mathematical Content: The Case of Ratio and Proportion*; Dor Abrahamson
- *The Construction of Mathematical Learning In Complex Instruction Groups*; Jean A Doyle, Boston College Lynch School of Education
- *Modality-Based Learning Environment For Young Children: A Reflection on Math Learning in China*; Aige Guo, University of Toledo
- *Limitations in Students' Concept Images of Functions: A Detailed Examination*; Andrew P Jaciw, Stanford University
- *Factors that Influence Middle School Students to Enroll in Algebra*; Lawrence E Letourneau, University of Nevada, Las Vegas
- *Moving between Reform and Traditional Mathematics Curricula: Patterns in Students' Mathematics Achievement*; Gary M Lewis, Jon R Star, Michigan State University
- *Computer Algebra Systems and Mathematics Education: A Learning Model*; Michael Meagher, The Ohio State University
- *Age and Gender Differences in Performance on a Spatial Rotation Test*; Michalis P Michaelides, Stanford University
- *The Relationships Among Problem Solving Performance, Gender, Confidence, and Attributional Style in Third Grade Mathematics*; Rosemarie Michaels, Dominican University of California
- *Secondary Students' Attitudes Toward the Use of Estimation in the Mathematics Classroom: Insights into Students' Perceptions of Mathematics and Implications for Curricular Design*; Mika Munakata, Montclair State University
- *Middle and High School Student Probabilistic Thinking*; Laurie Rubel, University of Wisconsin – Madison
- *Using a "New Synthesis of Reading in Mathematics" to Encourage Finite Mathematics Students to Act Like a Community of Mathematicians*; Janet St. Clair, Troy State University-Montgomery
- *A Comparative Assessment of Constructivist and Traditionalist Approaches to Establishing Mathematical Connections in Learning Multiplication*; Insook Chung, Saint Mary's College; Simon Kim, Cal State Long Beach

**2:15-2:55****Paper Discussion Session: Students' Mathematical Thinking: How it Might be Assessed and Examined**

- *The nature of mathematical disability in young children*; Robert A Reeve, Fiona J Reynolds, Univ. of Melbourne.
- *Interactive assessment, metacognition, and individual differences in proportional reasoning*; Fiona J Reynolds, Robert A Reeve, University of Melbourne:
- *Sixth graders' conceptualizations of geometric polygons*; Caroline F Borrow, Kent State University.
- *The development of children's understanding of multidigit multiplication in a third-grade classroom*; Jae Meen Baek, Arizona State University.
- *Understanding students' mathematical thinking: Factors influencing on teachers' analyzing students' written responses to open-ended assessment tasks*; Jinfa Cai, University of Delaware.
- *Certified to know: Students' interpretations of measures of mathematical success*; Robert M Klein, The Ohio State University: Peter Appelbaum, Arcadia University.
- *Revising mathematics assessment items for alignment to curriculum standards*; Robert M Capraro, Mary Margaret Capraro, Texas A&M University.

**2:15-3:45****Symposium: Studying Teacher Learning from Cases and Other Practice-Based Materials**

Session Chair: Margaret S Smith; University of Pittsburgh

Discussants: Virginia Richardson; University of Michigan, Douglas Grouws; University of Iowa

- *Distinguishing Between Additive and Multiplicative Relationships: Tracing the Development of Teachers' Understanding of Proportionality in a Practice-Based Course*; Margaret S Smith; University of Pittsburgh; Edward A Silver; University of Michigan; Gaea Leinhardt; University of Pittsburgh; Amy Hillen; University of Pittsburgh
- *Cases as Vehicles for Enhancing Teacher Learning: What Do Teachers Learn and How Do They Learn It?* Mary Kay Stein; Margaret S Smith; Elizabeth K Hughes; University of Pittsburgh
- *Learning Content in the Context of Practice: A Videocase Curriculum Example*; Nanette Seago; San Diego State University Foundation; Heather Hill; University of Michigan; Dan Heck; Horizon Research; Judy Mumme; WestEd:
- *Tracing Teachers' Development in Recognizing and reconciling Representations of Linear Functions within Teaching Practice*; Nanette Seago; San Diego State University Foundation: Judy Mumme; WestEd

**2:15-3:45**

**Paper Session: Attending to Issues of Equity and Diversity in the Teaching of Science and Mathematics**

Session Chair: Patrick M. Jenlink; Stephen F. Austin State University

Discussant: Anita Lenges; University of Washington

- *Learning to Teach Science to All: Beginning Teachers' Experiences in Middle School Science Classrooms*; Julie A Bianchini; *Influence of Science Education Professional Development on African American Science Teachers' Conceptual Change and Practice*; Angelicque Tucker; Emory University
- *Promoting Science and Literacy among Linguistically Diverse Students: Impact of Instructional Intervention on Teacher Knowledge, Beliefs, and Practices*; Juliet E. Hart; Okhee Lee; Craig K Enders; University of Miami
- *Using Programs of Instructional Research to Develop Attention to Equity in Programs of Elementary Mathematics Instruction*; Keisha M Ferguson; Deborah Ball Loewenberg; University of Michigan

**WEDNESDAY**

**8:15-10:15**

**Paper Session: Mathematics Reform in Classrooms and Districts**

Session Chair: Linda Ruiz Davenport; Boston Public Schools

Discussant: Janine Remillard; University of Pennsylvania

- *Understanding the culture of elementary mathematics classrooms in transition*; JeongSuk Pang, Korea National University of Education.
- *Collaborative mathematics classrooms: The development of a community's practices*; Megan E Staples, Stanford University.
- *The impact of a standards-based mathematics curriculum on student achievement in Massachusetts: A Connected Mathematics follow-up study*; Julie Riordan, University of Pennsylvania; Pendred E Noyce, The Noyce Foundation; David Perda, University of Pennsylvania.
- *Algebra in Massachusetts middle schools: Access, achievement, and implications*; David A Perda, University of Pennsylvania; Julie E Riordan, University of Pennsylvania; Pendred Noyce; Noyce Foundation.
- *A theoretical framework for understanding students' conceptions of algebraic equivalence*; Nancy L O'Rode, University of California at Santa Barbara.

**10:35-12:05**

**Symposium: Early Algebra**

Session Chair: David W Carraher, TERC

Discussant: Kim Ruane, Tufts University

- *The symbioses between signed numbers and an algebrafied curriculum*; Irit Peled, Haifa University.
- *Function graphs and multiplicative structures in third grade*; Analucia D Schliemann, Tufts University; Anne Goodrow, Rhode Island College; Susanna Lara-Roth, Tufts University.
- *Multiple notational systems and algebraic understandings*; Barbara Brizuela, Tufts University; Darrell Earnest, TERC.
- *Understanding teacher development in algebraic reasoning within a district-based community of learners*; Maria Blanton, U Mass- Dartmouth.

**10:35-12:05**

**Symposium: Teaching for social justice: Issues of agency and praxis in math and science education**

Session Chair: Angela Calabrese Barton; Teachers College Columbia University

Discussant: William Tate

- *I've never felt this special: Valuing student knowledge in science*; Kathleen St. Louis; Teachers College Columbia University;
- *Students in a diverse, urban, middle school engage in mathematics to explore, critique and transform their world*; Erin E Turner; University of Texas Austin; Beatriz Font; New York City Public Schools
- *Middle school science students' beliefs, attitudes and agency*; Sumi Hagiwara; Teachers College Columbia University
- *Exploring the Politics of Caring in Urban Science Education*. Maria Rivera; Teachers College Columbia University
- *Envisioning Race, Culture and Identity in Urban Science Classroo* Verneda Johnson; Teachers College Columbia University

**12:25:1:55**

**Symposium: Identity, Equity, and Mathematical Learning in the Context of Statistical Data Analysis**

Discussant: Na'ilah Nasir, Stanford University

- *Two views of culture and their implications for investigating equity in mathematics education*; Lynn Liao Hodge, Paul Cobb, Vanderbilt University.
- *Students' construction of identities as doers of mathematics in the context of statistical data analysis*; Paul Cobb, Lynn Liao Hodge; Vanderbilt University;
- *Classrooms as design spaces for supporting students' identities as doers of mathematics*; Kay McClain; Paul Cobb, Vanderbilt University.

**12:25:1:55**

**Interactive Symposium: The Negotiation of Values in State-Wide Mathematics Reform**

Chris Ohana, Western Washington University

Discussant: Janet Sharp, Iowa State University

- *In the Trenches: Two classroom Perspectives*; Esther Holman, Wind River Middle School; Jessica Van Son, Cascade Middle School
- *From Nudge to Coach*; Ruth Chamberlin, ESD 112
- *Infusing Technology in Math Classrooms*; Colleen Bellas, ESD 112
- *Raising the Grade: A State Department of Education Perspective*; James Smith, Office of the Superintendent of Public Instruction

**2:15-3:45**

**Symposium: If We Build It, Will They Come? A Diversity of Perspectives on Parents and School Mathematics Reform**

Session Chair: Sarah Theule Lubienski, Iowa State University

Discussant: Doug McLeod, San Diego State University

- *Traditional or standards-based mathematics? Parents' choices in one district*; Sarah Theule Lubienski, Iowa State University.
- *Parents as observers in the mathematics classroom: Establishing a dialogue between school and community*; Marta Civil, Emily Bernier, Beatriz Quintos, University of Arizona
- *Gatekeepers and guardians: African American parents' responses to mathematics and mathematics education reform*; Danny Martin, Contra Costa College.
- *Working with the public to improve school mathematics: Parents' views on mathematics curriculum reform*; Dominic Peressini, University of Colorado at Boulder; Kate Masarik, San Diego State University; Lisa Adajian, Portland State University; Dan Canada, Portland State University

**2:15-3:45**

**Symposium: Unpacking Mathematics Underachievement: Researching Home and School Mathematics Practices in the UK and USA)**

Chair: Diane D Anderson, Swarthmore College

Discussant: Eva Gold, Research for Action, Philadelphia, PA

- *Listening to the Child*, Diane D Anderson, Swarthmore College
- *Disruptive Seth Doesn't Go to the Grocery*, Janine Remillard, University of Pennsylvania
- *Home Numeracy Practices: Obstacles or Resources?* Brian Street, Kings College London
- *Theorizing Descriptors of the 'Travel' of Home and School Learning/Numeracy Practices*, David Baker, University of Brighton, UK

**6:15-7:45**

**SIG/RME Business Meeting**

Swissotel, Alpine 2, Ballroom Level

## THURSDAY

**8:15-9:45**

**Paper Session: The Influence Of Context On Mathematical Practices**

- *The Mathematical Behavior of Structural Engineers*; Julie Gainsburg, Stanford University
- *The Microgenesis of Mathematical Generalizations: A Fine-Grained Look at Transfer and Conceptual Change*; **Joseph F Wagner, University of California, Berkeley**
- *Students' Use of The Reference Point Strategy for Measurement Estimation*; Elana Joram, University of Northern Iowa; Anthony J. Gabriele, University of Northern Iowa; Myrna Bertheau, Shell Rock Elementary School

**8:15-9:45**

**Structured Poster Session: Entitled to Understand: Curriculum Design, Teacher Community and Classroom Discourse in Successful Algebra Project Schools**

Chair: James G. Greeno, Stanford University

Discussants: Edmund Gordon, Teacher's College, Columbia University; Robert Moses, Algebra Project

- *A Framework for Understanding Mathematical Meaning in Teacher Practice*; Frank E Davis, Lesley University
- *Algebra for All: A Ten-year Study of a Successful Middle School*; Marian Currell, Martin Luther King Middle School, Mary Maxwell West, Lesley University
- *Considering Competence and Transparency of Representations as Achievements of Interaction in Classroom Practices*; James G Greeno, Stanford University
- *Working Out the Process of a Mathematical Activity*; Victoria Hand, Stanford University
- *Transparency Through Legitimate Peripheral Participation: Creating Mathematical Representations and Meanings in the Algebra Project*; Taylor Martin, Stanford University
- *Mathematical Competence As Procedural Fluency*; Melissa Sommerfeld, Stanford University

**10:35-12:05**

**Symposium: Everyday Classroom Assessment - Practice, Theory, and Policy: Where do we go from here?**

Session Chair: J Myron Atkin; Stanford University

Discussants: J Myron Atkin; Stanford University, Paul J. Black; King's College London

- *The Local and the Practical: Exploring Teachers' Assessment Practices*; Mistilina D. Sato; Janet E. Coffey; Savitha Moorthy; Matthew D. Thibeault; J Myron Atkin; Stanford University
- *A Successful Formative Intervention: Why did it work?* Paul J. Black; Christine Harrison; Dylan Wiliam; King's College London
- *A Comparative Look at Two Classroom Assessment Projects: What are the lessons? Where do we go from here?* J Myron Atkin; Janet E. Coffey; Savitha Moorthy; Mistilina D. Sato; Matthew D. Thibeault; Stanford University; Paul J. Black; Dylan Wiliam; King's College London

**10:35-12:05**

**Paper Session: Exploring the Role of Identity in the Teaching of Mathematics and Science**

Session Chairs: Christine Nucci; Arizona State University

Discussants: Juliet Baxter; University of Oregon

- *Role of Teacher Knowledge and Identity in Classroom Interactions in Elementary Mathematics*; Corey Drake; University of Missouri-St.Louis; Susan B. Empson; Higinio Dominguez; Debra L. Junk; Kevin LoPresto; University of Texas at Austin
- *The Development Of A Pro-Reform Mathematics Teacher Identity: The Case Of Holly*; Laura R Van Zoest; Western Michigan University; Jeffrey V Bohl; Battle Creek Area Mathematics and Science Center
- *Target Students: Catalysts or inhibitors to the teaching and learning of chemistry in a masters of chemistry education program*; Kate Scantlebury; University of Delaware; Kenneth G Tobin; University of Pennsylvania
- *Coherence, Contradiction and the Formation of School Science Identities*; Stacy I Olitsky; University of Pennsylvania; Linda Loman; Curtin University of Technology

**10:35-12:05**

**Paper Session: Technology as a Tool for Teaching Mathematics and Science**

Session Chairs: Sharon Anne O'Connor; SUNY at Old Westbury

Discussants: Jon Margerum-Leys; Eastern Michigan University

- *Evaluation of a multimedia case-based learning environment for science teacher education in Jamaica*. Melody A. Williams; Ellen van den Berg; Jan van den Akker; University Of Twente
- *Face-to-Face and Computer Mediated Tutoring: A Comparative Exploration on High School Math Students' Achievement*. Barbara Schpilberg; Betty Hubschman; Barry University
- *Science teachers' perspectives of web-supported problem-based learning environment: A qualitative inquiry*. Younghoon Kim; Barbara L Grabowski; Hae-Deok Song; Pennsylvania State University

**12:25-1:55**

**Symposium: International perspectives on the results from the TIMSS-R Video Study: Sharing the global responsibility for the quality of mathematics teaching**

Session Chair: James Hiebert; University of Delaware

Discussant: James Stigler; LessonLab, Inc.

- *Overview of TIMSS-R Video Study*, Patrick Gonzales; National Center for Education Statistics
- *Country presentation: Australia*, Barry McCrae; Australian Council for Educational Research
- *Country presentation: Japan*, Hanako Senuma; National Inst. for Ed. Policy Research of Japan
- *Country presentation: Netherlands*, Klaas Tj Bos; University of Twente
- *Country presentation: Switzerland*, Kurt Reusser; University of Zurich, Christine Pauli; University of Zurich



**2:15-3:45**

**Symposium: Supporting and Sustaining the Learning of Professional Teaching Communities in the Institutional Setting of the School and School District**

Session Chair & Discussant: Megan Franke; University of California, Los Angeles

- *Supporting Teachers' Learning in the Social Context of the Professional Teaching Community*; Chrystal Dean; Paul Cobb; Kay McClain; Vanderbilt University:
- *Situating Teachers Instructional Practices in the Institutional Setting of the School and School District*; Paul Cobb; Kay McClain; Vanderbilt University
- *The Institutionally Situated Learning of a Professional Teaching Community: The Case of Washington Park*; Kay McClain; Teruni Lamberg; Lori Tyler; Vanderbilt University:
- *The Institutionally Situated Learning of a Professional Teaching Community: The Case of Jackson Heights*; Teruni Lamberg; Chrystal Dean; Paul Cobb; Qing Zhao; Vanderbilt University

**FRIDAY**

**8:15-10:15**

**Symposium: Exploring the dynamic tensions between classroom and institutional change: Implications for professional development in math & science**

Facilitators/Discussants: Leslie Herrenkohl; Elham Kazemi; University of Washington

Participants: Paul Cobb; Vanderbilt University; Kay McClain; Vanderbilt University;

Rich Lehrer; Vanderbilt University; Judith Warren Little; UC Berkeley; Ann Rosebery; TERC;

Beth Warren; TERC; Adam Gamoran; University of Wisconsin-Madison

**8:15-10:15**

**Symposium: Studying Teacher Knowledge for Secondary Algebra Instruction: Challenges in Design and Analysis**

Chair: Joan Ferrini-Mundy; Michigan State University

Discussant: Jo Boaler; Stanford University

- *Teacher Knowledge for Teaching School Algebra: Challenges in Developing an Analytic Framework*; Joan Ferrini-Mundy; Robert Floden; Dara Sandow; Sharon Senk; Gail Burrill; Michigan State University
- *Teacher Knowledge for Teaching School Algebra: Challenges in Using a Situated Perspective*; Hilda Borko; Jeff Frykholm; Christine Willis; Mary Pittman; Erick Eiteljorg; University of Colorado, Boulder
- *Teacher Knowledge for Teaching School Algebra: Challenges in Linking Teacher Knowledge and Student Achievement*; Daniel Chazan; University of Maryland; John P. Smith, III.; Michigan State University; Betsy P. Becker; Michigan State University; Robin Marcus; University of Maryland

**10:35-12:05**

**Interactive Symposium: Diversity in Mathematics Education: Cross-Disciplinary Perspectives on a Shared Case**

Chair: Noel Enyedy, UCLA

Discussant: Judit Moschkovich, UCSC

- *Possible and Actual Social and Linguistic Resources that Support Student Participation in a Bilingual Mathematics Classroom*; Noel Enyedy, UCLA; Megan Franke, UCLA; Geoff Saxe, UCB; Walter Secada, UW-Madison; Grace Brown, UCLA; Viviana Castellon, UCLA; Joi Spencer, UCLA
- *The Emergent Culture of Mathematics in a Bilingual Classroom*; Thomas Carpenter, UW-Madison; Andrew diSessa, UC Berkeley; Alan Schoenfeld, UC Berkeley; Deanna Freund, UCLA; Tonya Gau, UW-Madison; Charles Hammond, UC Berkeley; Shiuli Mukhopadhyay, UCLA
- *Language Change within Mathematics Education as a Product of the Cross-Disciplinary Study of a Classroom Case*: Rogers Hall, Vanderbilt; Fred Erickson, UCLA; Ann Ryu, UC Berkeley; Laurie Rubel, UW-Madison; Nooneh Kradjian, UCLA

**12:25-1:55**

**Symposium: Mathematics and Gesture**

Chair: Tracy Noble, TERC

Discussants: Martha Alibali, University of Wisconsin – Madison; Rafael Nuñez, University of California at San Diego

- *A "Natural History" of Mathematical Gesture*; Laurie Edwards, St. Mary's College
- *Gestures and Classroom Mathematical Practices*; Chris Rasmussen, Michelle Stephan, Karen Whitehead, Purdue University Calumet
- *Gesture and the Mathematics of Motion*; Tracy Noble, TERC
- *The Symbolic Body*; Ricardo Nemirovsky, Tracy Noble, Cara DiMattia, TERC

**12:25-1:55**

**Paper Session: Measuring The Influence Of Mathematics Professional Development And Instructional Interventions**

- *Making Sense of the Teaching of Word Problems: Perspectives from High School Mathematics Teachers*; Olive Chapman, University of Calgary
- *Characterising Individual and Cohort Progression in Learning Numeracy: Results From the Leverhulme 5-Year Longitudinal Study*; Margaret L Brown, Mike Askew, Valerie Rhodes, Hazel Denvir, Dylan Wiliam, King's College, London
- *Examining Curricular Redesign of a High School Mathematics Department and Its Influences on Access to Advanced Mathematics*; Lecretia A Buckley, University of Illinois at Urbana-Champaign
- *Effects of a Research-based Preschool Mathematics Curriculum: Summative Evaluation of the Building Blocks Project*; Julie Sarama, Douglas H. Clements, SUNY Buffalo
- *Developing “Proportional Reasoning Sense:” Anchoring Instruction in Percents and Measurement*; Joan K Moss, Beverly A Caswell, University of Toronto OISE
- *Conceptualization of Constructs in Korean Primary Mathematic*; Janice Grow-Maienza, Truman State University; Susan Beal, Saint Xavier University, Chicago; Tamela Randolph, South East Missouri State University

**12:25-1:55**

**Paper Session: Teacher Knowledge And Teacher Development In Mathematical Contexts**

- *U.S. and Chinese Teachers' Knowing, Evaluating, and Constructing Representations in Mathematics Instruction*; Jinfai Cai, University of Delaware
- *Incorporating Student Thinking in Instruction: The Use of Pedagogical Tools in the Classroom*; Karen A Marrongelle, Portland State University, Michael Keynes, Chris Rasmussen, Purdue University Calumet
- *Learning about Teaching by Studying the Growth of Students' Mathematical Understanding*; Jo Towers, University of Calgary

**12:25-1:55**

**Paper Session: Documenting and Assessing Effective Teaching Practices in Math and Science**

Session Chairs: Kenneth Ruthven; University of Cambridge

Discussants: Ann C. Howe, NC State University

- *Transforming practice for accessibility: Narrative accounts of three teachers' attempts at integrating inclusive science education*; Brenda Capobianco; Purdue University;
- *Assessing Some Aspects of Teachers' Instructional Practices Through Vignettes: An Exploratory Study*; Maria Araceli Ruiz-Primo; Stanford University; Min Li; University of Washington
- *Teachers experiencing confusion over a student's idea can promote students' mathematical reasoning*; Eileen Fernandez; Montclair State University
- *Investigating inquiry-teaching in elementary classrooms: A teaching experiment*; Michael Barnett; Boston College; Sasha A Barab; Indiana University; William Harwood; Indiana University; Charles Reigeluth

**12:25-1:55**

**Paper Session: Interdisciplinary Approaches to Teaching Science and Mathematics**

Session Chairs: Valarie L Akerson; Indiana University

Discussants: Margaret A Schimmoeller; Randolph-Macon Woman's College

- *This is not your parents' chemistry course: Using group work to improve science learning and literacy*; Sarah-Kate LaVan; Sonya Martin; University of Pennsylvania
- *Collaborative Leadership in an Integrated Approach to Teaching Science*; Josephine D Wallace; David K Pugalee; Patricia Douville; University of North Carolina at Charlotte
- *Accountability for Teacher Development: Collaborative Efforts to Prepare Teachers to Address Math, Science and Technology Standards*; Cynthia J Benton; SUNY Cortland
- *Mathematics and Language Arts Integration in the Elementary School*; Ron W. Zambo; Arizona State University West

**2:15-3:45**

**Symposium: Teaching All Children: Making Visible the Imperative for Equity in Elementary Mathematics Teaching**

- *Designing Mathematics Problems for Access and Equity*; Deborah Loewenberg Ball; Hyman Bass; University of Michigan
- *Collecting Norms for Collective Work*; Mark Hoover; University of Michigan
- *From Everyday to Mathematics: The Evolution of Mathematical Practices*; Ed Wall; University of Michigan
- *Where is Equity? Tensions in Attention to Equity in the Mathematics Classroom*; Jennifer M. Lewis; University of Michigan

**Research Pre-session  
April 7-9, 2003  
Convention Center  
San Antonio, Texas**

**Monday, April 7<sup>th</sup> 2003**

**7:00-8:30 p.m.**

Opening Session

*Randomized Trials, Their Progress, Prospects, and Challenges*

Robert Boruch

Reception Follows

**Tuesday, April 8<sup>th</sup> 2003**

**9-10:30 a.m.**

*Treating Lessons as Experiments: A Model for Improving Teaching and Teacher Education Programs*

Hiebert, Morris, Glass, Wearne, Goggins, Hwang, Peterson

*Leadership and Learning in Elementary Schools: Three Cases of Collaboration among Principals, Teacher Leaders, and Mathematics Coaches*

Davenport, Carter, Porn, Grant, Briars, Scott-Nelson

*What Constitutes Good Mathematics Teaching and How It Develops: Nine High School Teachers' Perspectives*

Wilson, Cooney, Stinson, Knuth, Burrill

*Explorations of Mathematical Learning within Social Settings*

Ebby, Remillard, Mosley-Culpepper, Klein, Jackson, Tatar, Greeno

*Generalization and Proof, Grades K-5: Learning From Classroom Cases*

Schifter, Monk, Bastable, Russell

*The Quality of Mathematics Education Research*

Simon, Clements, Presmeg, Maher, Silver

*Sustaining Teacher Change-Learning from Action Research*

McCabe, Kowalchuk

**11 a.m.-12:30 p.m.**

*Korean Primary Mathematics: Block Learning and Conceptualization of the Constructs*

Grow-Maienza, Beal, Trafton, Thompson, Miura

*Teacher Leadership Roles: What Our Research Has Uncovered About Initiating and Implementing Them*

Fonzi, Miller, Weiss

*Teaching Well in K-12 Mathematics Classrooms: Understanding Teachers' Mathematical Understandings*

Whitenack, Cavey, Lovin, Heaton

*On Latinos and Mathematics: A View of the "Possible"*

Khisty, Chval, Morales, Civil

*Building Interdisciplinary Software Teams*

Reed, Greer, Hoffman, Kaput

*Multiple Perspectives on an Early Childhood Mathematics Curriculum Research Project*

Clements, Sarama, Bardsley, Spitler, Baroody, Steffe, Wheatley

*The Role of Beliefs, Values, and Norms in Mathematics Classrooms: A Conceptualization of Theoretical Lenses*

Eisenmann, Jansen-Hoffmann, Tiong -Seah, Pimm, Theule-Lubienski

**1:30-2:30 p.m.**

Poster Sessions

- *Seeking "School" Mathematics in the Everyday Practice of Structural Engineers*
- *Is the Algebra EOC Exam Aligned with Current Standards?*
- *Experimental and Quasi-Experimental Research on Instructional Approaches for Teaching Mathematics to Students with Learning Disabilities*
- *Perspectives on Teachers' and Students' Algebraic Understandings*
- *An Alternative Approach to the Mathematics Education of Future Elementary School Teachers*
- *Developing Children's Probability and Statistics Knowledge: A Research of Teachers' Professional Development and Teacher Researchers*
- *New Methods for Teaching Mathematics Online to Independent Learners*
- *The Benefits of Order-of-Magnitude Problems in the Mathematics Classroom to Promote Creative Strategy to Use Problem-Solving Tasks*
- *The Role of Curriculum in Mathematics Courses for Prospective Elementary Teachers*
- *Interpretive Frameworks and Integrated Instruction*
- *Applying Research Results in Classrooms*
- *Exploring Relationships Between Reform-Based Pedagogical Practices and Equity in the Intercity Classroom*
- *Teacher to Move and Win*
- *Developing Teacher Leaders in Mathematics through Professional Learning Communities*
- *Using National and International Assessment Frameworks to Improve Mathematics Instruction*
- *The Role of Identity in Supporting Professional Development via Collegial Interaction*
- *Teaching Algebra to Struggling Learners*
- *Gaining Options: Girls Investigate Real Life*
- *The Effect of a Function-Based Approach to Teaching Pre-Algebra in a Ninth-Grade Introduction to Algebra I Course*

**1:30-2:30 p.m.**  
Mentoring Session

**2:45-5:15 p.m.**

*Secondary Mathematics Teachers' Learning through Practice*  
Doerr, Artzt, Curcio, Koc, McGraw, English, Van Zoest, Bohl, Brown, Lesh

*Schools as a Unit of Change in Mathematics Education Professional Development: Issues for Implementation and Research*  
Sztajn, White, Pateman, Zilliox, Alleksaht-Snider, Gutierrez, Campbell

*Conceptualizing and Proving in Mathematics Classrooms*  
Herbst, Balacheff, Harel, Knuth

*Research on Mathematics Education in Rural Settings*  
Schultz, Hatfield, Howley, Mahoney, Nelson, Silver

*Climbing the Inference Wall: Trying an Informal Approach*  
Rubin, Konold, Finzer, Hammerman

*Teacher Development through Examination of Practice*  
Koellner-Clark, Amit, Blanton, Lewis, Middleton, Murata, Schifter, Schorr, Takahashi

*Relating Professional Development to the Classroom: Understanding Teachers' Experience*  
Kazemi, Stimpson, Lenges, Bastable, Sherin

### **Wednesday, April 9<sup>th</sup> 2003**

**8-9:30 a.m.**

*Studying the Impact of Standards-Based Middle School Mathematics Curricula*  
Shafer, Reys, Kulm, Zawojewski

*If We Build It, Will They Come? A Diversity of Perspectives on Parents and School Mathematics Reform*  
Theule-Lubienski, Civil, Bernier, Quintos, Martin, Peressini, Masarik, Adajain, Canada, Ferrini-Mundy

*Integrating Mathematics and Pedagogy: An Investigation of the Effects on Elementary Preservice Teachers' Beliefs and Learning of Mathematics*  
Philipp, Sowder, Clement, Schappelle, Thanheiser, Cooney, Franke

*Recent Mathematical Sciences Education Board Reports and Conferences: Implications for Research, Policy, and Practice*  
MSEB, Lacampagne

*Essential Elements of Lesson Study for Mathematics Teacher Professional Development*  
Hovermill, Frykholm, Guzman

*NAEP Student Responses: How Can We Use Them and What Can We Learn From Their Use?*  
Brown, Lambdin, Wilcox

Publishing in the Journal for Research in Mathematics Education  
JRME Editorial Panel

*Writing about Research for a General Practitioner*  
NCTM Editorial Panels

**10-11:30 a.m.**

*Opportunities in Mathematics Education Research*  
Hamilton, Sloane, Chval

*Knowledge for Teaching Algebra in Secondary School: Perspectives and Issues*  
Senk, Romagnano, Mumme, Seago Papick

*The Role of Institutional Context in Enabling and/or Constraining Professional Teaching Communities as Sites for Teacher Change in Mathematics*  
McClain, Cobb, Lechman, Regis, Schmitt, Ashley, Synan, Simon, Kazemi

*NAEP: Recent Data, Trends, and Issues*  
Lester, Kenney, Kloosterman, Kehle, Braswell

*A National Study of Leadership in Mathematics and Science Education: Implications for Doctoral Programs in a Changing Educational Context*  
Burrill, Ferrini-Mundy, Graham

*Inquiry Learning for Preservice Middle School Mathematics Teachers*  
Wanko, DeLoach-Johnson, Keiser-Krumpe Stonewater, Lappan, Bay-Williams

*Factors Affecting the Mathematics Education of Hispanic Immigrant Middle Schoolers*  
Long, Hur, Gesslin, Hirigoyen, Hamilton

*Visual Comprehension in Algebra, Statistics, and Calculus*  
Van Dyke, J. White, Soto, A. White

*Teaching and Learning Integrated Mathematics and Science: Benefits and Barriers*  
Marrongelle, Moremi -Adeyemi, Jones, Meier



**12:45-3:15 p.m.**

*The Upcoming Research Catalyst Conference*  
Standards Impact Research Group

*Networked Handhelds: How Can Classroom Connectivity Advance Standards-Based Teaching*  
Roschelle, Kaput, Stroup, Davis, Hegedus, Vahey, Ares, Hamilton, ,

*Researching Intervention in Early Number Learning*  
Wright, Stafford, McLean, McClain, Martland, Munn, Pateman, Williams

*A Systematic Look at Learning, Development, and Curriculum Design in Mathematics Education: The Impact of Case's Theory*  
Moss, Kalchman, Okomoto, Cobb, English, Hiebert, Koedinger

*Developing Algebraic Thinking in Early Grades: Case Studies of Chinese, Japanese, Russian, Singaporean, South Korean, and U.S. Elementary Math Curricula*  
Cai, Carpenter, Fujii, Huinker, Kieran, Lew, Fong, Ng, Schmittau, Moyer

**1:30-3:00 p.m.**

*How High School Students Approach Algebra Problems: A Cross-Curricular Study*  
Marcus, Kahan, Heid, Goroff, Huntley

*Tracking the Student Performance of Staff-Development Participants*  
Lewis, Hynes, Dixon, Hoffman, Lowery

*The Joint Impact of a Semestered (4x4) Block Schedule and the Interactive Mathematics Program (IMP) Curriculum on High School Mathematics Achievement*  
Kramer, Keller, Merlino

**3:30-4:45 p.m.**

Closing Session  
*Towards Defining the 'Scientific' in Scientific Research in Mathematics Education*  
Jere Confrey

## **Fellowships for Doctoral and Post-Doctoral Study in Mathematics Education**

The National Science Foundation has funded five Centers for Learning and Teaching to help rebuild the nation's infrastructure in mathematics education. These Centers have funds to provide long-term support for individuals who wish to pursue doctoral and post-doctoral studies in mathematics education. Competition for National Science Foundation fellowships is open to United States citizens or permanent residents at the time of application. We are particularly interested in people who want to make a difference in mathematics education and whose career goals include leadership in research, development, and practice that improves school mathematics.

Fellows will study with nationally known faculty addressing critical issues in:

- research on teaching and learning of mathematics
- development of mathematics curriculum and assessment materials
- preparation and professional development of mathematics teachers
- educational policy and leadership for school mathematics

### **Contact Information:**

National Science Foundation Centers for Learning and Teaching:

*[www.ehr.nsf.gov/esie/resources/centers.asp](http://www.ehr.nsf.gov/esie/resources/centers.asp)*

ACCLAIM: *[www.ACCLAIM-Math.org](http://www.ACCLAIM-Math.org)*

William S. Bush: University of Louisville • 502.852.0590 • [bill.bush@louisville.edu](mailto:bill.bush@louisville.edu)

Vena Long: University of Tennessee • 865.974.6973 • [vlong@utk.edu](mailto:vlong@utk.edu)

CLT-West: Elisabeth Swanson: Montana State Univ. • 406-994-6768 • [eswanson@montana.edu](mailto:eswanson@montana.edu)

Libby Krussel: University of Montana • 406.243.4818 • [krussel@mso.umt.edu](mailto:krussel@mso.umt.edu)

Ron Narode: Portland State University • 503.725.4798 • [naroder@pdx.edu](mailto:naroder@pdx.edu)

Ed Geary: Colorado State University • 970.491.1315 • [egeary@csmate.colostate.edu](mailto:egeary@csmate.colostate.edu)

John Moore: University of Northern Colorado • 970.351.2973 • [Jcmoore@unco.edu](mailto:Jcmoore@unco.edu)

CPTM: *<http://www.cptm.us/>*

Pat Wilson: University of Georgia • 706-542-4194 • [pwilson@coe.uga.edu](mailto:pwilson@coe.uga.edu)

Deborah Ball: University of Michigan • 734-647-3713 • [dball@umich.edu](mailto:dball@umich.edu)

DiME/CLT: *[www.wcer.wisc.edu/dime](http://www.wcer.wisc.edu/dime)*

Thomas Carpenter: UW-Madison • [tpcarpen@facstaff.wisc.edu](mailto:tpcarpen@facstaff.wisc.edu)

Megan Loef Franke: UCLA • [mfranke@ucla.edu](mailto:mfranke@ucla.edu)

Alan Schoenfeld: University of California, Berkeley • [alans@socrates.berkeley.edu](mailto:alans@socrates.berkeley.edu)

MAC-MTL: *[www.education.umd.edu/mac-mtl](http://www.education.umd.edu/mac-mtl)*

James Fey: University of Maryland • 301-405-3151 • [mac-mtl@umail.umd.edu](mailto:mac-mtl@umail.umd.edu)

Patricia Campbell: University of Maryland • 301-405-3129 • [pc2@umail.umd.edu](mailto:pc2@umail.umd.edu)

Kathleen Heid: The Pennsylvania State University • 814-865-2430 • [mkh2@psu.edu](mailto:mkh2@psu.edu)

James Hiebert: University of Delaware • 302-831-1653 • [hiebert@udel.edu](mailto:hiebert@udel.edu)

### **ACCLAIM**

ACCLAIM is a consortium linking resources and faculty from the University of Tennessee, University of Kentucky, Ohio University, and the University of Louisville with the Appalachian Rural Systemic Initiative (ARSI). The ACCLAIM mission is to build infrastructure in the Appalachian region of Kentucky

Ohio, Tennessee, and West Virginia. The two overarching goals of ACCLAIM are:

- To build mathematics capacity and expertise in the Appalachian regions of Kentucky, Ohio, Tennessee, and West Virginia through advanced degree programs in mathematics education and through research that connects mathematics and rural education
- To improve the quality of mathematics teaching at the middle and high school levels in the Appalachian region through the development of collaborative teacher preparation and professional development.

To meet these goals, ACCLAIM has established four interconnected initiatives involving capacity building, professional development teacher education,

and research. Advanced degree applicants from the Appalachian regions of the four partner states will receive highest priority.

### **CLT-West**

CLT-West is a consortium of Montana State University, Portland State University, the University of Montana, Colorado State University, and the University of Northern Colorado, in partnerships with Fort Belknap College in Montana, and other community and tribal colleges, Portland Public Schools, and numerous rural and reservation schools in Montana and Colorado. CLT-West goals are:

- To increase the number of qualified mathematics and science teachers
- To provide professional development and support to math and science teachers in low income and high minority schools in the West's urban and rural schools
- To investigate how technology can improve graduate education programs
- To prepare leaders in science and mathematics education.

To meet these goals, CLT-West builds an infrastructure for the development of preservice teachers, masters and doctoral students, and community college and university faculty that builds on the participants' expertise in distance education and is likely to be institutionalized. CLT-West fellows will be a multi-disciplinary group of pre-doctoral and post-doctoral students working with faculty to conduct research, team teach new courses, work with colleagues on the reform of upper division science and mathematics courses for preservice teachers and/or provide professional development to schools and districts involved with the Center.

### **CPTM**

CPTM is a consortium of the University of Georgia, the University of Michigan, the Board of Regents of the University System of Georgia, the University of Michigan–Dearborn, Henry Ford Community College (MI), the Oakland (MI) Intermediate School District, the Gwinnett County (GA) Public Schools, the Morgan County (GA) Schools, and the Social Circle (GA) City Schools. The Center's goals are as follows:

- To enhance the mathematical preparation of teachers in grades pre-kindergarten to 16 across their professional lifespan.
- To make instructional practice and its development the heart of teachers' professional education.
- To build connections among the different professional contributors, settings, and institutions involved in the education of mathematics teachers.

Toward these goals, the Center is (a) developing prototypical activities, instruments, and materials for pre-service teacher education courses and for in-service courses, seminars, and workshops; (b) offering institutes and workshops on courses for teachers as well as graduate-level programs for teacher leaders, doctoral fellows, and postdoctoral fellows in mathematics and mathematics education; and (c) conducting research on teachers' learning of mathematics for teaching. Doctoral and postdoctoral fellows will

investigate not only proficiency in teaching and learning mathematics but also the nature and effectiveness of efforts in teacher education and professional development.

### **DiME/CLT**

DiME/CLT is a consortium involving the University of Wisconsin-Madison, University of California, Berkeley, University of California, Los Angeles, Madison Metropolitan School District, California Subject Matter Project. DiME/CLT is building an integrated program to develop and enhance the instructional workforce from kindergarten through graduate school. The program consists of three interrelated components: a doctoral/postdoctoral component; a teacher education component for teachers and instructional leaders; and a comprehensive research agenda. These components are integrated by a strong focus on the ideas of algebra and issues related to learners with diverse cultural, language and cognitive backgrounds.

The centerpiece of the DiME/CLT is the community of scholars, including the faculty, doctoral and masters students, participating teacher, and undergraduates, who engage in the collective analysis of cases of mathematical learning and teaching using Web-based software. Cases are developed and placed on the common Web site and participants analyze the cases in multiple ways using different sets of theoretical lenses. This cross-institutional cross-disciplinary collaboration will be studied as part of the Center's evaluation; the result of that study will be published so that other institutions can launch their own efforts at preparing people to teach mathematics to an increasingly diverse student population.

### **MAC-MTL**

MAC-MTL is a collaborative effort by mathematics and mathematics education faculty of the University of Delaware, the University of Maryland, and Pennsylvania State University, the Delaware State Department of Education, the Prince George's County (MD) Public Schools, and the Pittsburgh (PA) Public Schools. The Center's goals are:

- To design and operate an innovative multi-campus program of doctoral studies for specialists in mathematics education research, teacher education, curriculum development, and policy leadership.
- To develop, evaluate, and disseminate models for the mathematics education of prospective teachers and professional development of practicing mathematics teachers in elementary, middle, and high schools.

The MAC-MTL program for doctoral fellows provides experiences that afford the construction of: (1) Breadth and depth of knowledge of and about mathematics. (2) Understanding of the learning environments that support deep understanding of mathematics. (3) Scholarly dispositions and skills that enable knowledge generation and transformation. The CMTL also conducts four projects aimed at improving mathematics teacher education and professional development — one focused on elementary and middle school teacher candidates, a second for prospective high school mathematics teachers, a third for teacher development at the elementary and middle school level, and a fourth for teacher development in high school. The four projects will yield models for improved teacher education that have been tested for transportability through field trials at partner institutions.