



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

**Winter 2002 Newsletter**

<http://teach.math.nevada.edu/sig/rme/>

**SIG/RME Executive Board**

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Norma Presmeg  
Illinois State University  
2000-2002

Linda Ruiz Davenport  
Boston Public Schools  
2001-2003

**Treasurer**

(appointed)  
Cindy Langrall  
Illinois State University  
2001-2002

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Jeff Shih  
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**Election Results**

Congratulations to the newly elected SIG-RME officers:

Co-Chair  
Dan Chazan  
Michigan State University

Treasurer  
Cindy Langrall  
Illinois State University

Steering Committee  
Vic Cifarelli  
University of North Carolina-Charlotte

We appreciate their willingness to serve the organization for the next 2 years. Thanks to Jeff Shih for facilitating on-line voting. The number of people voting was dramatically increased over previous years, due in large part to on-line voting.

We extend our thanks to outgoing officers Norma Presmeg and Jinfa Cai for all of their hard work and service to SIG-RME. Cindy Langrall and Jeff Shih also deserve recognition for serving as officers this year to fill vacancies. Jeff will continue to serve in this role for another year.

## **Annual Business Meeting**

The SIG-RME annual business meeting will be held Thursday, April 4 from 4:15-5:45. Please consult the final AERA program for the location of this meeting. 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).

### **Directory**

The current SIG-RME directory is included with this mailing. We have made every effort to ensure that the information in the directory is correct. We apologize for any errors. If your contact information is not correct, please make sure to update it with Cindy Langrall ([langrall@mail.ilstu.edu](mailto:langrall@mail.ilstu.edu)).

### **Membership 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.

### **Job Postings**

Have a job you want to advertise? Send your position announcement to Jeff Shih ([jshih@unlv.edu](mailto:jshih@unlv.edu)), and he will post it on the SIG-RME web site.

## **Thank You**

Special thanks go to Salli Park of the Department of Mathematics Education at the University of Georgia for her assistance in compiling all of the corrections to the membership directory. Also, Salli Park and Bernice Peters have graciously and competently managed all of the logistics that go into getting the newsletters printed and mailed three times a year. Thanks to both of them for their work in support of SIG-RME.

### **Electronic Newsletter Option**

If you prefer to receive an e-mail alerting you when a SIG-RME newsletter has been posted on-line rather than receiving a paper copy, please notify Denise Mewborn ([dmewborn@coe.uga.edu](mailto:dmewborn@coe.uga.edu)). (Note: All members received a paper copy of this newsletter because it is being mailed with the directory. Members who have previously expressed interest in electronic notification also received an e-mail message when the newsletter was posted on the web site.)

### **Important Dates 2002**

April 1-5: AERA in New Orleans

April 19-21: NCTM Research Pre-session in Las Vegas (Note that this is a Friday, Saturday, Sunday.)

July 21-26: Psychology of Mathematics Education conference, Norwich, England  
<http://www.uea.ac.uk/edu/pme26/>

September 20-25: The Humanistic Renaissance in Mathematics Education conference Sicily, Italy

October 26-29: Psychology of Mathematics Education—North American Chapter conference, Athens, GA  
<http://www.pmena.org>

**Final Program**  
**AERA Annual Meeting, New Orleans, April 1-5, 2002**  
**Special Interest Group Research in Mathematics Education Program**

Program dates and times were assigned by AERA. A few sessions have been moved from their preliminary assignments to avoid conflicts with other SIG-RME sessions, so final room assignments are pending. Please verify all information in the official program. The following are the sessions for the SIG/RME.

**1.68. Monday, 12:00-2:00 PM. Sheraton, Grand Ballroom E, 5<sup>th</sup> floor.**

**Paper Session: Students' understanding of mathematics.** (120 minutes)

Chair: Jeffrey Shih

Presenters:

- Bryan Moseley: "Constructing single versus multiple perspective understandings of rational numbers: The role of informal knowledge."
- Fiona Reynolds, Robert Reeve, & Philippa Pattison: "The diagnostic value of identifying performance patterns in children's proportional reasoning competence."
- Caroline Borrow: "An investigation of the development of 6<sup>th</sup> grade students' geometric reasoning and conceptualizations of geometric polygons in a computer microworld."
- Karen Hollebrands: "High school students' understandings of geometric transformations in the context of a technological environment."
- JaeMeen Baek: "An analysis of children's invented strategies for multidigit multiplication."
- Wanda Nabors: "Proportional reasoning: The case of Michael."

**20.13. Tuesday, 4:55-5:35 PM. Sheraton, Armstrong Ballroom, 8<sup>th</sup> floor.**

**Mathematics Education Paper Discussions 2** (40 minutes)

Presenters:

- Carol Smyth & Mark Beasley: "Effects of educational opportunity on eighth grade achievement in the US and Korea multilevel analysis of TIMSS."
- Robert Klein: "Getting students to 'work as mathematicians do': A critical analysis of 'foundational assumptions'."
- Robert Capraro, Gerald Kulm, & Mary Margaret Capraro: "Investigating the complexity of middle grade students' understandings of mathematical constructs."
- Aisling Leavy & Noreen O'Loughlin: "Moving beyond the arithmetic average: Preservice teachers' understanding of the mean."
- Joanne Lobato, Amy Ellis, & Ricardo Muñoz: "Paradox or possibility: The generalization of situated reasoning."
- Thomas Schroeder, Corinne Schaeffer, John Donovan, & Christopher Reisch: "Preservice teachers' understanding of functions: A performance assessment based on non-routine problems analyzed in terms of versatility and adaptability."

**24.72. Wednesday, 8:15-9:45 AM. Le Meridien, France I, 3<sup>rd</sup> floor.**

**Invited address:** Setting an agenda for studying the next round of mathematics standards: Learning from past efforts. (90 minutes)

Chair: Norma Presmeg

Organizers: Mary Kay Stein and Frank Lester

Presenters:     Suzanne Wilson                     Jane David  
                  Susan Fuhrman                     Norm Webb

Discussants: Iris Weiss and Joan Ferrini-Mundy

**28.46. Wednesday, 12:25-1:55 PM. Sheraton, Grand Ballroom B, 5<sup>th</sup> floor.**

**Interactive Symposium:** Next steps for achieving equity in mathematics education. (90 minutes)

Chair, Organizer, and Presenter: Laurie Hart

Presenters:     Martha Alleksaht-Snider     Lena Licon Khisty  
                  Eric Gutstein                     Danny Bernard Martin

Discussant: Walter Secada

**30.84. Wednesday. Please see Program for details.**

**Paper Session:** Equity and culture in mathematics education. (90 minutes)

Chair: Yukari Okamoto

Presenters:

- Vivian Moody: “Investigating African-American students’ voices: The challenge of listening, interpreting, and understanding.”
- Alexander Dawson, Norma Evans, & Lesley Lee: “An emerging perspective on mathematics teacher education in Pacific island communities.”
- Kelly Gaddis: “Mathematical diversity as a site and source for teacher learning.”
- Jae-Hoon Lim: “Young adolescent girls’ experiences with school mathematics: An ethnographic case study focused on sociocultural context of motivation.”
- John Rugutt, Chad Ellett, & Eugene Kennedy: “A study of students’ academic change in mathematics achievement: a case for African American students.”

**37.29. Thursday, 8:15-10:15 AM. Sheraton, Rhythms III, 2<sup>nd</sup> floor.**

**Interactive Symposium:** International Perspectives on Mathematics Classrooms. (120 minutes)

Chair, Organizer, and Presenter: David Clarke

Presenters:     Jill Adler                                     Joanne Lobato  
                  Renuka Vithal                     Eva Jablonka  
                  Ida Mock                                 Christine Keitel  
                  Frederick Leung                     Yoshinori Shimizu  
                  FERENCE MARTON

**39.79. Thursday, 10:35-12:35 PM. Marriott, La Galerie, 2<sup>nd</sup> floor.**

**Paper Session:** Mathematics teachers, beliefs, and “good mathematics teaching”. (120 minutes)

Chair: Hugh Burkhardt

Presenters:

- Denise Mewborn: “Examining mathematics teachers’ beliefs through multiple lenses.”
- Patricia Wilson, Tom Cooney, Chris Drumm, & David Stinson: “What secondary mathematics teachers say constitutes good mathematics.”
- Sarah Lubienski: “Traditional or problem-centered mathematics? The choice of students and parents in one district.”
- Renmin Ye & Kathryn Sanchez: “A cross-national study of math homework arrangement: TIMSS data analysis.”
- Rebecca McGraw, Yusuf Koc, & Catherine Brown: “Talking about mathematics teaching: An examination of the use of a multimedia case to stimulate the conversation.”
- Teruni de Silva-Lamberg & James Middleton: “A whole class learning trajectory of the quotient construct.”

**45.80. Thursday, 4:15 PM-5:45 PM. Please see the Program for venue.  
Business Session and Reception**

**47.34. Thursday, 6:15-6:55 PM. Please see the Program for venue.**

**Mathematics Education Paper Discussions I** (40 minutes)

Presenters:

- Teruni de Silva-Lamberg & James Middleton: “Inscriptional practices as indices of emergent understandings of quotient.”
- Chrystal Dean & Kay McClain: “Investigating teacher change in the context of professional teaching communities.”
- Kathy Mittag & Alan Shoho: “Mathematics and science education cooperative: An exemplary mathematics and science staff development program.”
- Michelle Stephan & Chris Rasmussen: “Analyzing collective argumentation: An example from differential equations.”
- David Allen: “Mathematics experience: Classroom factors contributing to mathematics anxiety and avoidance behaviors in female elementary school pre-service teachers.”
- Joanne Becker: “Classroom coaching in elementary mathematics classes: A promising method of professional development.”
- Robert Hunting: Part-whole number knowledge in preschool children.”

**50.57. Friday, 8:15-9:45 AM. Sheraton, Pontchartrain C, 3<sup>rd</sup> floor.**

**Poster Fair: Mathematics education poster fair. (90 minutes)**

Posters: Olga Medvedeva  
Joanna Higgins  
Jacqueline Leonard, William Glee, & Chet Baker  
Carol Lerch  
Robert Reys, Mark Taylor, Brian Townsend, & Barbara Reys  
Constance Kamii  
Megan Staples  
Jeanne Tunks  
Kyung Keun Kim & Jung-Ho Yang  
Safure Bulut  
Jose Contreras  
Tracy Goodson-Espy, Samuel Espy, & Victor Cifarelli  
Mindy Kalchman & Kenneth Koedinger  
Paola Sztajn  
Ju-shan Hsieh  
Julie Cwikla

**NCTM Research Pre-session Program**  
**Las Vegas, Nevada**  
**April 19 – April 21, 2002**

**Friday, April 19<sup>th</sup>**

- 7:00 – 7:30 Welcome  
7:30 – 9:00 Opening Address: **Does Lesson Study Have a Future in the United States?**  
Catherine Lewis, Mills College

The Teaching Gap sparked great interest in lesson study, the heart of Japanese professional development. In lesson study, Japanese teachers collaboratively plan, observe, and discuss actual classroom "research lessons" in order to bring to life in the classroom their goals for students. This teacher-led lesson improvement is widely credited for the improvement of math and science instruction in Japan, and is now springing up in many U.S. schools. Using video and activities from actual lesson study, this presentation will explore the key elements of lesson study in the US and Japan, the benefits and challenges compared to other forms of professional development, and the conditions needed for successful adaptation of lesson study to the U.S.

- 9:00 – 10:00 Reception

**Saturday, April 20<sup>th</sup>**

- 8:00 – 10:30

**A Lesson Study Initiative Aimed at Exploring How to Promote Critical Thinking: Findings, Process, and Reflections.** Clea Fernandez, Babrina Ertle, Teachers College, Columbia University; Frances R. Curcio, Queens College of the City University of New York.

**A Research Symposium on Issues Related to African American Students' Mathematics: Where Can We Go From Here?** Marilyn Strutchens, Auburn University; Martin L. Johnson, University of Maryland; Dorothy Y. White, University of Georgia; Danny Martin, Contra Costa College; Carol Malloy, University of North Carolina at Chapel Hill.

**Interpretations of Mathematical Literacy.** Brian Greer, Swapna Mukhopadhyay, San Diego State University; Michael Cole, University of California, San Diego; Anna Sfard, University of Haifa; Christine Keitel, Freie Universität Berlin; John Volmink, University of Natal; Ubiratan D'Ambrosio, Brazil; Paul Cobb, Vanderbilt University.

**Gesture in Mathematical Thinking, Learning, and Teaching.** Laurie Edwards, St. Mary's College of California; Rafael Nunez, University of Fribourg/UC San Diego; Norma Presmeg, Illinois State University.

**Investigations of the Major Conceptual Strands of First Semester Calculus: The Role of Theory in Research and Practice.** Marilyn Carlson, Arizona State University; Eric Hsu, San Francisco State University; Mike Oehrtman, University of Texas.

**Students' Understanding of First-order Differential Equations** (poster session). John E. Donovan, State University of New York at Buffalo.

11:00 – 12:30

**Reforming K-5 Mathematics in an Urban District: What We've Learned in Baltimore.** Patricia Campbell, Donnette T. Dais, Stephen L. Kramer, University of Maryland; Andrea R. Bowden, Baltimore City Public School System.

**Design Principals As an Impetus for Teacher Change and Student Learning.** Kay McClain, Vanderbilt University; Jim Kaput, Maria Blanton, University of Massachusetts Dartmouth; David Carraher, Ricardo Nemirovsky, TERC; Analúcia Schliemann, Tufts; Jesse Solomon, City of a Hill.

**Students' Experiences Moving Between "Traditional" and "Reform" Curricula: What Are the Implications for K-16 Mathematics Education?** Jack Smith, Jon Star, Michigan State University; Jo Boaler, Stanford University; Sarah Theule-Lubienski, Iowa State University.

**Elementary School Teachers' Math Subject Knowledge: Problematising Normative Models.** Mike Askew, Alison Millett, Dylan Wiliam, Tamara Bibby, Jeremy Hodgen, King's College; Deborah Ball, Michigan State University; Jo Boaler, Stanford University; Beatriz D'Ambrosio, Indiana University Purdue University Indianapolis.

**MeasureUp: Elementary Mathematics Curriculum Development.** Barbara Dougherty, University of Hawaii; Zaur Berkaliev, Best Practices in Education.

**NCTM Journals Session.** The Editorial Panels of *Teaching Children Mathematics*, *Mathematics Teaching in the Middle School*, *Mathematics Teacher*, and *Journal for Research in Mathematics Education*.

**Lesson Study, American Style.** (poster session). Wanda Guzman, Karin Wiburg, Lisa Snow, New Mexico State University.

**A Visual Analysis of Knowledge Networks: Students Discuss Calculus** (poster session). Eric Hsu, San Francisco State University.



2:00 – 4:00

**Culture, Language, and Power Within Mathematics Classrooms and Beyond: New Lenses for Examining Equity in Mathematics Education.** Sarah Theule Lubienski, Iowa State University; Jo Boaler, Stanford University; Paul Cobb, Lynn Hodge, Vanderbilt University, Rochelle Gutierrez, University of Illinois, Urbana-Champaign; Judit Moschkovich, University of California, Santa Cruz; Deborah Ball, University of Michigan.

**Semiotic Perspectives in Mathematics Education Research.** Adalira Saenz-Ludlow, Vic Cifarelli, University of North Carolina at Charlotte; Norma Presmeg, Illinois State University; Lena Khisty, University of Illinois at Chicago; Erna Yackel, Purdue University Calumet

**Motivating Experiences in a Mathematics Course for Preservice Teachers.** Shelly Sheats Harkness, Anastasia Morrone, Beatriz D’Ambrosio, Indiana University Purdue University Indianapolis; Richard Caulfield, Indiana University.

**Preparing Elementary Mathematics Teachers for Success: Implementing a Research-based Mathematics Curriculum** (poster session). Joanne Caniglia, Irene Duranczyk, Elaine Richards, Eastern Michigan University; Janet Arszno, Rheta Rhubenstein, Schoolcraft College; Deborah Zopf, Larry Smirski, Henry Ford Community College

2:00 – 3:30

**Professional Development and Effective Teaching: Improving Students’ Mathematical Learning in the Early Years of School Through Improving Teachers’ Knowledge.** Marj Horne, Jill Cheeseman, Doug Clark, Andrea McDonough, Australian Catholic University; Patricia S. Wilson, University of Georgia.

**Teaching Experiment Methodologies.** Cynthia W. Langrall, Illinois State University.

**A Case Study of Two Schools Undergoing Systemic Reform in Mathematics.** David Pagni, California State University; Ruth Von Blum, Consultant.

**District-level Lesson Study: How Do Japanese Teachers Improve Their Teaching of Elementary Mathematics?** (poster session). Akihiko Takahashi, University of Illinois at Urbana-Champaign; Aki Murata, Northwestern University.

**Sunday, April 21<sup>st</sup>**

8:00 – 9:00

**Building Capacity in Mathematics Education: Where Will Our Future Leaders Come From?** Joan Ferrini-Mundy, Michigan State University; M. Kathleen Heid, Pennsylvania State University; Robert E. Reys, University of Missouri; John S. Bradley, Janice Earle, National Science Foundation; Glenda Lappan, Michigan State University.

**Looking Beyond Achievement Scores: Analyses of Urban Students' Mathematical Practices.** Janine T. Remillard, Caroline Brayer Ebby, Shea Mosley Culpepper, Valerie Klein, Natasha Murray, University of Pennsylvania; Jo Boaler, Stanford University.

**On Culture, Race, and Being Explicit and Implicit in Mathematics Education.** Jesse Solomon, City on a Hill; Ricardo Nemirovsky, TERC.

**Mathematical Early Field Experiences for Preservice Elementary School Teachers: Promoting Change or Confirming Tradition?** Rebecca Ambrose, Randy Philipp, Lisa Clement, Jennifer Chauvot, Cheryl Vincent, Eva Thanheiser, Sonia Woodbury, San Diego State University; Jeff Frykholm, University of Colorado at Boulder.

**The Use of Learning Trajectories in Curriculum Development and Research.** Douglas H. Clements, Julie Sarama, University of Buffalo, State University of New York; Michael Battista, Kent State University; Richard Lesh, Purdue University; Marty Simon, Pennsylvania State University; Les Steffe, University of Georgia.

**Web-based Mathematics Assessment and Student Performance** (poster session). Diem Nguyen, Texas A&M University.

10:00 – 11:30

**The Role of Argumentation in Mathematics Classrooms.** Joy Whitenack, University of Missouri-Columbus; Erna Yackel, Michelle Stephan, Purdue University Calumet; Bob Speiser, Brigham Young University.

**Functions, Rates, and Proof: The Situated Knowledge of Early Career Secondary Mathematics Teachers.** Lew Romagnano, Metropolitan State College of Denver; Dominic Peressini, Hilda Borko, Candace Wooley, Kate Masarik; University of Colorado at Boulder.

**Examining Teacher Change in Large-scale School-based Reform Efforts: What Do Different Perspectives Have to Offer?** Susan D. Nickerson, Judith Sowder, San Diego State University; Mary Kay Stein, University of Pittsburgh; Denise Mewborn, University of Georgia; Rose Taylor, teacher.

**Spencer Grant Session.** Teams who work collaboratively on teacher research sharing what they do and what they are learning.

**Perspectives on Classroom-based Research on the Teaching and Learning of Mathematics in the Context of Technology.** M. Kathleen Heid, Glendon W. Blume, Pennsylvania State University; Rose Marie Zbiek, Teresa Finken, University of Iowa; Sharon Dugdale, University of California; Gina M. Foletta, Northern Kentucky University; Brad Glass, University of Delaware; Karen F. Hollenbrands, North Carolina State University.

**Translating Policy into Practice: What Can Teachers Learn by Studying *Principals and Standards for School Mathematics*?** Dawn Berk, Michigan State University and University of New Hampshire; Cheryl Dodd, Dori Leyko, Stacie Vietzke, Jan Luft, Michele Oszust, Jeanne Meier, Barry Scales, mathematics teachers; Diane Lambdin, Indiana University.

**Increasing the Math Achievement Scores of African American Students: Building a Bridge Over the Gap** (poster session). Carey Montalvo, Nova Southeastern University.

12:45 – 3:15

**Increasing Student Achievement: Building on Ideas and Promoting Thinking About Mathematics.** Gerald Kulm, Robert Capraro, Mary Margaret Capraro, Texas A&M University; Elizabeth Hastings, Oakwood Intermediate School.

**Studying the Impact and Influence of Standards: Considerations in Building a Research Agenda.** Joan Ferrini-Mundy, Michigan State University; Gary Martin, Auburn University; Frank Lester, Indiana University; Mary Kay Stein, University of Pittsburgh; Deborah Ball, University of Michigan; Bill Tate, Texas Christian University; John Dossey, Illinois State University (emeritus); Iris Weiss, Horizon Research, Inc.

**Examining the Efficacy of a Professional Development Program: Lessons From a Middle School Mathematics Program.** Stephen J. Pape, Ohio State University; Beth Greene Costner, Winthrop University; Clare Bell, Columbus Public Schools; Edward A. Silver, University of Michigan; Alice Artzt, Queens College of the City University of New York.

**Spencer Grant Session.** Teams who work collaboratively on teacher research sharing what they do and what they are learning.

**Dynamic Representations in a Technological Environment.** Barbara Pence, San Jose State University; Colette Laborde, Laboratoire LEIBNIZ; Rudolf Straßer, Universität Bielefeld; Kathleen Heid, Pennsylvania State University.

**The Full Monty: Exposing Our (Unstated) Assumptions as Mathematics Teacher Educators.** Sandy Dawson, Norma Evans, and Lesley Lee, Pacific Resources for Education and Learning.

**Math Vision Project** (poster session). Robert Bayer, consultant; Jo Marie Kutscher, Wendy William, William Sereychas, David Pilati, George Woods, mathematics teachers.

**A Comparison of Teachers' Knowledge of Students' Competence in Math Problem-solving and Students' Perceived Self-efficacy** (poster session); Peggy Chen and Theresa Glover, City University of New York.

3:30 – 4:30 Closing Session: **Systemic Reform in Mathematics Education: What Have We Learned?** Iris R Weiss, Horizon Research, Inc.

Iris R. Weiss is President of Horizon Research, Inc., a small contract research organization in Chapel Hill, NC, specializing in research, development, and evaluation in science and mathematics education. She will share some of the findings of evaluations of state and local systemic reform initiatives, and her reflections on the implications for further research in mathematics education.