

# Research Pre-session Planning Committee

## NCTM Research Advisory Committee

**Barbara Dougherty, Chair**

University of Hawaii, Honolulu,  
Hawaii  
bdougher@hawaii.edu

**Beatriz S. D'Ambrosio**

IUPUI—School of Education,  
Indianapolis, Indiana  
bdambro@iupui.edu

**Eric Gutstein**

University of Illinois—Chicago,  
Chicago, Illinois  
gutstein@uic.edu

**Marilyn Hala, Staff Liaison**

NCTM Headquarters Office, Reston,  
Virginia  
mhala@nctm.org

**M. Kathleen Heid, Board Liaison**

The Pennsylvania State University,  
University Park, Pennsylvania  
mkh2@psu.edu

**Iris DeLoach Johnson**

Miami University, Oxford, Ohio  
johnsoid@muohio.edu

**James Middleton**

Arizona State University, Tempe,  
Arizona  
James.Middleton@asu.edu

**Robert E. Reys**

University of Missouri—Columbia,  
Columbia, Missouri  
reysr@missouri.edu

## SIG/RME Executive Board

**Daniel Chazan, Cochair**

University of Maryland, College Park,  
Maryland  
dchazan@umd.edu

**Randolph Philipp, Cochair**

San Diego State University, San  
Diego, California  
rphilipp@mail.sdsu.edu

**Nancy K. Mack, Recording Secretary**

Grand Valley State University,  
Allendale, Michigan  
mackn@gvsu.edu

**Cindy Langrall, Treasurer**

Illinois State University, Normal,  
Illinois  
langrall@mail.ilstu.edu

**Vic Cifarelli, Steering Committee**

University of North Carolina at  
Charlotte, Charlotte, North Carolina  
vcifare@email.uncc.edu,

**Patricio Herbst, Steering Committee**

University of Michigan, Ann Arbor,  
Michigan  
pgherbst@umich.edu

**Cengiz Alacaci, Electronic  
Communications Secretary**

Florida International University,  
Miami, Florida  
alacaci@fiu.edu

## Announcements

Registration and all sessions are located in the Pennsylvania Convention Center corridor across from Room 105 AB.

A light reception will be held Monday evening following the opening session in the Philadelphia Marriott Liberty Ballroom.

Research posters can be seen in Room 108 A on Tuesday, April 20.

Informal meetings can be held on Wednesday, April 21, in Room 108 B of the Convention Center.

Proceedings from the Research Catalyst Conference will be available in the NCTM Bookstore beginning Wednesday, April 21.

The Call for Papers for the next Research Pre-session, to be held in Anaheim, California, in April 2005, will be available online May 1, 2004.

All sessions will be in the Pennsylvania Convention Center.

**Monday, April 19, 2004**

**7:00 P.M.–8:30 P.M.**

### **1. My Unfinished Editorial: Reflections on Research in and on Mathematics Education**

#### **OPENING SPEAKER**

Edward A. Silver

University of Michigan, Ann Arbor, Michigan

In the United States there is an unprecedented amount of attention being paid to research in education. Calls have been made for improvements in educational research so that *scientific evidence* and *research-based practices* can guide educational improvement. As part of this public and professional discourse on the overall quality of education research, mathematics education research has been subjected to considerable critique. In this talk, I will offer some observations about the accomplishments and shortcomings of research in mathematics education and a few suggestions about how to enhance both the quality and impact of research in and on mathematics education.

**114**

**Tuesday, April 20, 2004**

**8:00 A.M.–10:30 A.M.**

## **2. Standards Impact Research Group: Setting a Research Agenda**

### **ORGANIZERS/SPEAKERS**

Joan Ferrini-Mundy

Michigan State University, East Lansing, Michigan

Frank Lester

Indiana University, Bloomington, Indiana

Participants of the eight working groups of the SIRG conference funded by NSF and NCTM and held September 11-13, 2003, began the task of outlining a standards research agenda. In this session we will provide a brief overview of the conference and the charge to the working groups. Working group members will host roundtable discussions. Ideas generated will be presented at the closing session.

**108 B**

**9:00 A.M.–10:30 A.M.**

## **3. Improving the Mathematics Learning of Indigenous Australian Students**

### **ORGANIZER/SPEAKER**

Annette R. Baturó

Queensland University of Technology, Brisbane, Queensland, Australia

a.baturó@qut.edu.au

### **SPEAKERS**

Elizabeth Warren

Australian Catholic University, Brisbane, Queensland, Australia

Thomas J. Cooper

Queensland University of Technology, Brisbane, Queensland, Australia

A number of projects are being conducted in Australian indigenous communities. These projects, which aim to improve the teaching and learning of mathematics for indigenous students, will be overviewed. Developments in mathematics pedagogy and their implications for indigenous students will be explored. Wider teaching implications will also be discussed.

**102 AB**

**9:00 A.M.–10:30 A.M. (CONTINUED)**

## **4. An Analysis of Mathematics Textbooks and Courses for Prospective Elementary School Teachers**

**ORGANIZER/SPEAKER**

Raven M. Wallace  
Michigan State University, East Lansing, Michigan  
ravenmw@msu.edu

**SPEAKERS**

Helen Siedel  
University of Michigan, Ann Arbor, Michigan  
Andreas Stylianides  
University of Michigan, Ann Arbor, Michigan

Mathematics textbooks for undergraduate elementary education majors, and courses that use those textbooks, have a large impact on the mathematics those students learn. This research investigates the content of current mathematics texts for elementary school teachers, the intentions and priorities of their authors, and how the texts are used in coursework.

**103 A**

## **5. Leadership and Learning in Elementary Schools: Assessment and Rubrics**

**ORGANIZER/SPEAKER**

Linda Davenport  
Boston Public Schools, Boston, Massachusetts  
ldavenport@boston.k12.ma.us

**SPEAKERS**

Michael Andrew Carter  
Roosevelt University, Chicago, Illinois  
Mary Jo Tavormina Porn  
University of Illinois at Chicago, Chicago, Illinois  
Cathy Miles Grant  
Rivendell Unified School District, Orford, New Hampshire

**DISCUSSANT**

Kay McClain  
Vanderbilt University, Nashville, Tennessee

In this symposium, we present case studies from three elementary schools in Boston in order to examine and compare the role that districtwide mathematics assessments and rubrics play as tools for communication about mathematics teaching and learning.

**103 B**

## 6. Multiple Perspectives on Negotiating Mathematics Reform in Urban Schools

### ORGANIZER/SPEAKER

Natasha M. Murray

University of Pennsylvania, Philadelphia, Pennsylvania

### SPEAKERS

Janine T. Remillard

University of Pennsylvania, Philadelphia, Pennsylvania

Kimberly L. Blagmon

University of Pennsylvania, Philadelphia, Pennsylvania

Valerie Klein

University of Pennsylvania, Philadelphia, Pennsylvania

Angela McIver

University of Pennsylvania, Philadelphia, Pennsylvania

Lanette Waddell

University of Pennsylvania, Philadelphia, Pennsylvania

### DISCUSSANT

Jacqueline Leonard

Temple University, Philadelphia, Pennsylvania

This symposium will focus on how various individuals are making sense of reform initiatives in urban K-8 classrooms. The viewpoints of teachers, students, student-teachers, and parents are analyzed as members of an extended classroom community. The data are drawn largely from participants in the School District of Philadelphia.

103 C



*Photo by Jim McWilliams. Copyright Philadelphia Convention & Visitors Bureau*

**9:00 A.M.–10:30 A.M. (CONTINUED)**

## **7. Improving Mathematics Proficiency—Chinese Mathematics Lesson Study**

### **ORGANIZER/PRESENTER**

Zhonghe Wu

Texas A&M University, College Station, Texas  
johnwu@neo.tamu.edu

### **PRESENTERS**

Shuhua An

California State University, Long Beach, California

Chunxia Qi

Beijing Normal University, Beijing, People's Republic of China

Li Yu

Future Education Division, National Center for Education Development  
Research, Beijing, People's Republic of China

Lanying Li

Beijing Zhongguancun Second Primary School, Beijing, People's Republic of  
China

This study examined the effective approaches in developing mathematics proficiency in Chinese classrooms and promoted international perspectives in mathematics education. Chinese elementary school math teachers will demonstrate how to build mathematics proficiency by showing actual classroom teaching.

**106 AB**

## **8. Collaboration as a Foundation for the Design and Usage of Technology-Rich Problems**

### **ORGANIZER/PRESENTER**

K. Ann Renninger

Swarthmore College, Swarthmore, Pennsylvania  
krennin1@swarthmore.edu

### **PRESENTERS**

Christopher J. DiGiano

University of Colorado, Boulder, Colorado

Wesley Shumar

Drexel University, Philadelphia, Pennsylvania

Suzanne Alejandre

The Math Forum, Philadelphia, Pennsylvania

Leslie Nielsen

Issaquah High School, Issaquah, Washington

In this interactive session, presenters will offer an overview about forms of collaboration that contributed to the development and use of technology-rich problems. Following this, attendees and presenters will consider the collaboration represented in this project and use this information to identify design principles for problem and project development.

**107 B**

**11:00 A.M.–12:30 P.M.**

## **9. Developing Strategic Leadership: Insights from Research and Practice**

### **ORGANIZER/PRESENTER**

Barbara Miller

Education Development Center, Newton, Massachusetts  
bmiller@edc.org

### **PRESENTER**

Iris Weiss

Horizon Research Inc., Chapel Hill, North Carolina

### **DISCUSSANT**

Judi Fonzi

University of Rochester, Rochester, New York

Leadership teams charged with designing, implementing, and monitoring mathematics reform face tremendous challenges. We will discuss how both research and the wisdom of practice can inform leaders as they engage in this strategic work, drawn from the *Handbook for Strategic Leadership for Mathematics and Science Partnerships*, and will invite participants to discuss their ideas.

**102 AB**



Photo by Jim McWilliams. Copyright Philadelphia Convention & Visitors Bureau

**11:00 A.M.–12:30 P.M. (CONTINUED)**

## **10. Research on Students' Learning of Probability: Implications and Connections**

### **ORGANIZER/PRESENTER**

Hollylynne Stohl

North Carolina State University, Raleigh, North Carolina  
hollylynne@ncsu.edu

### **PRESENTERS**

Carolyn Maher

Rutgers University, New Brunswick, New Jersey

Lyn English

Queensland University of Technology, Brisbane, Queensland, Australia

Betsy Berry

Purdue University, West Lafayette, Indiana

James E. Tarr

University of Missouri—Columbia, Columbia, Missouri

Dave Pratt

University of Warwick, Coventry, United Kingdom

### **DISCUSSANT**

J. Michael Shaughnessy

Portland State University, Portland, Oregon

This symposium brings together several key researchers who have studied students' learning of probability in various contexts. This research, cumulating more than fifteen years, can influence future work in learning and teaching probability and has important implications for, and connections to, other research in mathematics education.

**103 A**



*Photo by Coy Butler. Copyright Philadelphia Convention & Visitors Bureau*



## 11. International Project on Mathematical Attainment: Four Perspectives

### ORGANIZER/PRESENTER

Denisse R. Thompson  
University of South Florida, Tampa, Florida  
thompson@tempest.coedu.usf.edu

### PRESENTERS

David N. Burghes  
University of Exeter, Exeter, England  
Noreen O'Loughlin  
Mary Immaculate College, University of Limerick, Limerick, Ireland  
Berinderjeet Kaur  
National Institute of Education, Singapore

### DISCUSSANT

Jerry P. Becker  
Southern Illinois University, Carbondale, Illinois

The International Project on Mathematical Attainment (IPMA) is an international longitudinal study, involving seventeen countries. It aims, through following the mathematical progress of cohorts of pupils in the primary phase of their schooling, to determine good practice in primary mathematics teaching and learning.

103 C

## 12. What Are They Learning? Designing Studies of Elementary School Mathematics Curricula

### ORGANIZER/MODERATOR

Paul E. Kehle  
Indiana University, Bloomington, Indiana  
pkehle@indiana.edu

### PRESENTERS

Diana V. Lambdin  
Indiana University, Bloomington, Indiana  
Nancy K. Essex  
Indiana University, Bloomington, Indiana  
Kelly McCormick  
Indiana University, Bloomington, Indiana

We begin with short presentations about our longitudinal, focused, comparative evaluation of student achievement with TERC's "Investigations" curriculum. We are in the first year of data collection and will share instruments, preliminary results, and design guidelines. Then, in small groups, participants will discuss our study and conceptualize their own studies.

106 AB

**11:00 A.M.–12:30 P.M. (CONTINUED)**

### **13. Mentoring Novice Teachers of Mathematics: What Methods Do We Use to Determine Success**

**ORGANIZER/SPEAKER**

Sandy Dawson

University of Hawaii, Honolulu, Hawaii  
dawsona@hawaii.edu

**SPEAKER**

Joseph Zilliox

University of Hawaii, Honolulu, Hawaii

This working session addresses questions and issues regarding the methods of determining the impact of mentoring programs on novice teachers. The organizers share strategies they developed for the MENTOR Project and seek ideas and suggestions on potentially fruitful ways to determine the success (or lack thereof) of mentoring projects.

**107 B**

### **14. What Works Clearinghouse: Its Purpose and Progress Relative to Mathematics Education**

**SPEAKER**

Stephane Baldi

American Institutes for Research, Washington, D.C.

This session focuses on the What Works Clearinghouse (WWC) and its relationship to mathematics education research. The speaker will describe the progress that is being made toward establishing the WWC. She will also discuss the various instruments and their use specific to mathematics education.

**103 B**

**1:30 P.M.–2:30 P.M.**

### **15. Mentoring Session for Novice Researchers**

**ORGANIZERS**

James Middleton

Arizona State University, Tempe, Arizona  
James.Middleton@asu.edu

Robert Reys

University of Missouri—Columbia, Columbia, Missouri



*Photo by Nick Kelsh. Copyright Nick Kelsh*

#### **MENTORS**

Marilyn Carlson

Arizona State University, Tempe, Arizona

Daniel Chazan

University of Maryland, College Park, Maryland

Marta Civil

University of Arizona, Tempe, Arizona

James T. Fey

University of Maryland, College Park, Maryland

Richard Lesh

Purdue University, West Lafayette, Indiana

Rose Mary Zbiek

The Pennsylvania State University, University Park, Pennsylvania

A group of experienced researchers, representing a diversity of research interests and methodologies, will be available to talk informally with small groups of conference participants about undertaking a personal research agenda. This session will be organized in a roundtable format, with each mentor assigned to chat with no more than ten participants.

**107 B**

## **16. A Math Project's Impact on Preservice Teachers' Notions of Student Thinking**

#### **ORGANIZER/POSTER PRESENTER**

Stephanie L. Behm

Virginia Tech, Blacksburg, Virginia

sbehm@vt.edu

This poster displays findings associated with research in a mathematics course for preservice elementary school teachers. The impact of a semester-long Fraction Mathematics Project on preservice teachers' conceptions of student understanding and on their own knowledge of fractions will be the focus. Includes written work and teachers' reflections on their learning.

**108 A**

**1:30 P.M.–2:30 P.M. (CONTINUED)**

## **17. Strange Attractors and the Dynamics of Students' Attitudes toward Mathematics**

**ORGANIZER/POSTER PRESENTER**

Zaur Berkaliiev

Department of Mathematics, California State University Fresno, Fresno,  
California

zaur\_berkaliiev@csufresno.edu

This presentation addresses strange attractors and chaos as a new theoretical framework for understanding the dynamics of students' attitudes toward mathematics. The theoretical component is supplemented with an empirical study based on a survey administered in a problem-solving class for preservice elementary school teachers each day during the entire semester.

**108 A**

## **18. Voices of Successful African American Male Middle School Mathematics Students**

**ORGANIZER/POSTER PRESENTER**

Robert Q. Berry III

Old Dominion University, Norfolk, Virginia

rqberry@odu.edu

This presentation is about the stories of eight African American male middle school students who have experienced success in mathematics. The stories revealed five broad themes: (a) early experiences, (b) aggregated individual discrimination, (c) support systems, (d) drawing upon school/community resources, and (e) self-empowerment.

**108 A**

## **19. How Intensive Field-Based Programs Affect Student Teaching and Beyond**

**ORGANIZER/POSTER PRESENTER**

Joanne C. Caniglia

Eastern Michigan University, Ypsilanti, Michigan

jcaniglia@emich.edu

**POSTER PRESENTER**

Barbara Leopard

Eastern Michigan University, Ypsilanti, Michigan

This study investigated the relationship between an intensive field-based mathematics methods course (K–5 after-school program) and how it influenced preservice teachers' student-teaching experience. Participants included fifty preservice teachers. The Stages of Concern about the Innovation Questionnaire, interviews, and demographic questions were used throughout the

**108 A**

## **20. Teacher Decision-Making: Discourse in the Elementary School Mathematics Classroom**

### **ORGANIZER/POSTER PRESENTER**

Tutita M. Casa

University of Connecticut, Storrs, Connecticut  
tutita.casa@uconn.edu

Qualitative case studies of three elementary-level teachers investigating the decisions they made with respect to discourse in the teaching of mathematics will be presented. Subsequent discussions will be centered on the characteristics of the processes the teachers displayed when planning for, carrying out, and looking back on classroom instruction.

**108 A**

## **21. Mathematics Faculty Collaborate: Learning from Classroom Video**

### **ORGANIZER/POSTER PRESENTER**

Julie Cwikla

University of Southern Mississippi Gulf Coast, Long Beach, Mississippi

This poster will review an NSF-funded CAREER project that supports a professional development collaborative for mathematics educators from five institutions of higher learning. The collaborative uses assessment and survey data collected from preservice teachers, as well as video recordings from their classrooms, to drive improvements in practice.

**108 A**

## **22. Teacher Development through Research-Based Curricular Materials**

### **ORGANIZER/POSTER PRESENTER**

Donna P. Diaz

Clemson University, Clemson, South Carolina  
ddiaz@clemson.edu

Although limited research exists to suggest the possibility that standards-based curricular materials may support teacher learning, such materials are primarily developed with the student's learning in mind. This action research study examines possible design components that could be included in curricular materials to support teacher learning.

**108 A**

**1:30 P.M.–2:30 P.M. (CONTINUED)**

## **23. Students' Algebraic Understandings of the Concepts of Variable and Function**

**ORGANIZER/POSTER PRESENTER**

Angeles Dominguez  
ITESM, Campus Monterrey, Monterrey, Mexico  
angeles.dominguez@itesm.mx

**POSTER PRESENTER**

Ernesto Colunga  
ITESM, Campus Monterrey, Monterrey, Mexico

In this poster session, we propose to integrate variables and functions into the college mathematics curriculum with a clear and sound understanding of the concepts that could empower students to use variables and functions with all their potential.

**108 A**

## **24. Preservice Mathematics Teachers' Knowledge of High School Trigonometry**

**ORGANIZER/POSTER PRESENTER**

Cos D. Fi  
University of North Carolina at Greensboro, Greensboro, North Carolina  
cdfi@uncg.edu

Results of a study on preservice teachers' knowledge of trigonometry as measured by a test of trigonometry, concept maps, card sorts, and interviews will be presented. Implications for teacher education and high school teaching will be explored. Research instruments will be shared as well.

**108 A**

## **25. The Balanced Approach to Mathematics: Developing Number Sense through Reasoning**

**ORGANIZERS/POSTER PRESENTERS**

Shawn Garnett  
Humboldt Elementary School, Portland, Oregon  
Kimla Johnson-Koziuk  
Grout Elementary School, Portland, Oregon

The Balanced Approach to Math is an elementary school-wide model with exceptional achievement results. The model uses a reasoning-based approach, introduces language to bridge from concrete to abstract, and develops basic facts and problem-solving skills so that typically 80 to 90 percent of students master concepts the first time they are taught.

**108 A**

## **26. Preservice Teachers' Use of Student Work as Warrant for Claims of Professional Knowledge**

### **ORGANIZER/POSTER PRESENTER**

Christopher E. Hartmann

Georgia State University, Atlanta, Georgia  
chartmann@gsu.edu

This poster session describes a study of the use of professional portfolios in a preparation program for secondary school mathematics teachers. The research identified patterns in the participants' use of student work to warrant claims about their growth as teachers. The findings have implications for the design of preparation programs for mathematics teachers.

**108 A**

## **27. An Analysis of Preservice Teacher Written Explanations**

### **ORGANIZER/POSTER PRESENTER**

Drew K. Ishii

The Ohio State University, Columbus, Ohio

In this session the results of a research study that examined the written explanations of undergraduate preservice elementary school teachers in their first mathematics content course will be discussed. A traditional lecture/recitation approach as well as an inquiry/exploratory approach were employed with different sections of students.

**108 A**

## **28. Using Standards-Based K–12 Materials in Preservice Teacher Education: Issues and Questions**

### **ORGANIZER/POSTER PRESENTER**

Gwendolyn M. Lloyd

Virginia Tech, Blacksburg, Virginia  
lloyd@vt.edu

This poster displays findings associated with a research project that investigates the implementation of reform-oriented K–8 curriculum materials in a mathematics course for prospective elementary school teachers. This poster focuses in particular on the experiences of a mathematics instructor teaching the course and using reform-oriented curriculum materials for the first time.

**108 A**

**1:30 P.M.–2:30 P.M. (CONTINUED)**

## **29. InterMath: Five Implementations**

**ORGANIZER/POSTER PRESENTER**

Chandra Orrill  
LPSL-University of Georgia, Athens, Georgia  
corrill@coe.uga.edu

**POSTER PRESENTERS**

Sarah Ledford  
University of Georgia, Athens, Georgia  
Polly Drew  
University of Georgia, Athens, Georgia  
Ayhan Kursat Erbas  
University of Georgia, Athens, Georgia

This study looks at five implementations of a technology-based workshop for middle-grade teachers through the lens of research-based professional development (NPEAT 2000). Findings are presented focused on what happened and how to improve professional development experiences.

**108 A**

## **30. Research Findings Involving Number Operations and Algebraic Thinking Games**

**ORGANIZER/POSTER PRESENTER**

Enrique Ortiz  
University of Central Florida, Orlando, Florida  
ortiz@mail.ucf.edu

The presenter will share research findings related to the development of new instructional games. Pretests and posttests were given to participants. Paired *t*-tests and correlation coefficients were used to measure the effectiveness of these games to help students from kindergarten to fifth grade master basic-fact operations and use algebraic thinking.

**108 A**

## **31. The Impact of a Professional Development Program on Teachers' Self-Efficacy**

**ORGANIZER/POSTER PRESENTER**

Anne Papakonstantinou  
Rice University, Houston, Texas  
apapa@rice.edu



This presentation examines the impact of the Rice University School Mathematics Project's (RUSMP) Summer Program for PreK–12 teachers on teachers' self-efficacy. Results support the prediction that the manipulation of self-efficacy antecedents increases teacher self-efficacy. How to use RUSMP's model for promoting large increases in teacher self-efficacy will be discussed.

108 A

## 32. The Differences between Computation Methods in Contexts

### ORGANIZER/POSTER PRESENTER

Sung Sun Park

Chunchon National University of Education, Chunchon, Korea  
starsun@cnue.ac.kr

This study investigates the differences between two kinds of computation methods. One is based on situated learning (SL), and the other is based on traditional learning (TL). Two classes (grade 2) studied addition and subtraction of three-digit numbers. After that, they completed written tests (computation problems, story problems, and real-situation problems) and were interviewed. An analysis of these computation methods led to three results. First, the SL group differed from the TL group in the methods of solving computation problems and story problems. Three major differences were observed: (1) the SL group did addition and subtraction by 10 won (the basic monetary unit of Korea), whereas the TL group did addition and subtraction digit-by-digit; (2) the SL group computed from left digit to right digit, whereas the TL group computed from right digit to left digit (i.e., by the standard method). Second, there was also a difference between the two groups in their recognition of the context resources given in the problems. Although the TL group saw computation problems that involved won as computing with numbers, the SL group considered them as computing with money. Also, when solving written story problems, the SL group tended to solve them by thinking they were actually buying goods. This result affirmed the difference between in-school and out-of-school activities, and the importance of connecting informal, everyday mathematics and formal school mathematics.

108 A

## 33. An Analysis of Preservice Teachers' Knowledge of Technology

### ORGANIZER/POSTER PRESENTER

Diana S. Perdue

Virginia State University, Petersburg, Virginia  
dperdue@vsu.edu

This presentation will address a study of preservice teachers' knowledge and skills regarding technology (calculator and computer). Results of a five-year survey of preservice teachers enrolled in required teaching with technology courses will be discussed.

108 A

**1:30 P.M.–2:30 P.M. (CONTINUED)**

## **34. What Can We Learn from Lesson-Study Debriefing Sessions?**

**ORGANIZER/POSTER PRESENTER**

Rebecca R. Perry

The Lesson Study Group at Mills College, Oakland, California  
rperry@mills.edu

**POSTER PRESENTER**

Mary N. Leer

School District of Lancaster, Lancaster, Pennsylvania

Results from TIMSS generated considerable “lesson study” activity among U.S. educators; however, the debriefing element of lesson study appears to be inconsistently implemented and understood. Using a database of international (U.S.-Japan) and intranational (U.S.-specific) comparisons, we will focus on distinguishing characteristics of lesson-study debriefing sessions.

**108 A**

## **35. Survey Data about the Preparation of South Texas Mathematics Teachers**

**ORGANIZER/POSTER PRESENTER**

Olga M. Ramirez

University of Texas—Pan American, Edinburg, Texas  
oram@panam.edu

**POSTER PRESENTERS**

John E. Bernard

University of Texas—Pan American, Edinburg, Texas

Walter J. Leite

University of Texas at Austin, Austin, Texas

A summary of descriptive and inferential statistics of the mathematics data collected by a survey made possible by the National Science Foundation will be shared. Variables explored include teachers' professional development history, their self-perceptions of competence, their use of active learning strategies, and their willingness to pursue additional professional development opportunities.

**108 A**

## **36. A Comparison of Teaching Frequentist and Subjective Probability in Middle Grades**

### **ORGANIZER/POSTER PRESENTER**

Jeanne D. Rast

St. John the Evangelist School, Hapeville, Georgia

The purpose of this research is to examine how different representations of Bayesian reasoning problems affect middle school students' ability to reason correctly in probabilistic situations. Several problems and representations will be presented, and results of student interaction with these problems will be discussed.

**108 A**

## **37. Toward a Model of Mathematics Reform in Urban Secondary Schools**

### **ORGANIZER/POSTER PRESENTER**

Celia K. Rousseau

University of Memphis, Memphis, Tennessee  
croussea@memphis.edu

This presentation reports the preliminary results of a study of prealgebra and algebra teachers in an urban area. The goal of the work is to begin to develop a framework for understanding the influences—both positive and negative—on mathematics reform in urban secondary schools.

**108 A**

## **38. The Black-White Mathematics Achievement Gap: Teachers' Beliefs and Practices**

### **ORGANIZER/POSTER PRESENTER**

Laurie H. Rubel

Brooklyn College, City University of New York, Brooklyn, New York

### **POSTER PRESENTERS**

Tonya Gau

University of Wisconsin, Madison, Wisconsin

Marian Slaughter

University of Wisconsin, Madison, Wisconsin

Laura Grandau

University of Wisconsin, Madison, Wisconsin

Our research investigates teacher beliefs and practices about the black-white mathematics achievement gap. Elementary, middle, and secondary school teachers from a small midwestern city were asked to respond to local testing data disaggregated by race. We will present themes and ongoing questions that emerge from their responses.

**108 A**

**1:30 P.M.–2:30 P.M. (CONTINUED)**

## **39. The Parent-Child Self-Efficacy Connection in Mathematics**

**ORGANIZER/POSTER PRESENTER**

Robb Sinn

North Georgia College and State University, Dahlonega, Georgia  
rsinn@ngcsu.edu

The mathematics self-efficacy of student-parent pairs was measured using the MSES-R ( $n = 104$ ). Eight student-parent pairs were selected to be interviewed on the basis of the survey. Both phases of research demonstrated that parents play a vital role in the formation of their children's beliefs about mathematics.

**108 A**

## **40. Preservice Teachers' Observations of Children's Mathematical Thinking**

**ORGANIZER/POSTER PRESENTER**

Laura Jacobsen Spielman

Virginia Tech, Blacksburg, Virginia  
spielman@vt.edu

This poster addresses what preservice elementary school teachers participating in two sections of a course "see" when they view a video clip of a child doing mathematics. Similar and differential observations between the two sections are explored. Relationships are also drawn between preservice teachers' observations and each section.

**108 A**

## **41. Proportional Reasoning: Hypothetical Learning Trajectory**

**ORGANIZER/POSTER PRESENTER**

Olof B. Steinhorsdottir

University of North Carolina at Chapel Hill, Chapel Hill, North Carolina  
steintho@email.unc.edu

This study focused on 26 fifth-grade girls' development of proportional reasoning. Four levels of proportional reasoning were identified. Level 1: ratio knowledge; Level 2: given ratio perceived as an indivisible unit; Level 3: the given ratio perceived as a reducible unit; Level 4: proportion understood in terms of multiplicative relations.

**108 A**

## 42. Three Major Forms of Lesson Study: The Rigidity and Flexibility of Lesson Study

### ORGANIZER/POSTER PRESENTER

Akihiko Takahashi  
DePaul University, Chicago, Illinois  
atakahas@depaul.edu

### POSTER PRESENTERS

George Rose  
Willard Middle School, Berkeley, California  
Jesse Ragent  
Willard Middle School, Berkeley, California  
Jacob Disston  
Willard Middle School, Berkeley, California  
Marjory Learned  
San Mateo/Foster City School District, San Mateo, California

This presentation will focus on three major forms of lesson study—school-based, districtwide, and nationwide lesson study—and describe each form by using video clips and lesson plans from Japan so that participants can discuss issues in order to implement lesson study in different settings in the United States.

108 A

## 43. Examining the Perceptions and Quality of Alternatively Prepared Teachers

### ORGANIZER/POSTER PRESENTER

Christine D. Thomas  
Georgia State University, Atlanta, Georgia  
cthomas11@gsu.edu

### POSTER PRESENTERS

Nikita D. Patterson  
Georgia State University, Atlanta, Georgia  
Clara N. Okoka  
Georgia State University, Atlanta, Georgia

Participants will be engaged in the examination of a standards-based alternative preparation program and discuss aspects of a longitudinal study designed to investigate the program with respect to teachers' perceptions of their impact on student achievement in secondary school mathematics.

108 A

**1:30 P.M.–2:30 P.M. (CONTINUED)**

## **44. Preservice Teachers' Use of Representation in Mathematics and Science Lesson Plans**

**ORGANIZER/POSTER PRESENTER**

Robin A. Ward  
University of Arizona, Tucson, Arizona

**POSTER PRESENTERS**

Elisabeth Roberts  
University of Arizona, Tucson, Arizona  
Cynthia Anhalt  
University of Arizona, Tucson, Arizona

Mathematics and science lesson plans, written by prospective K-8 teachers and submitted at the beginning and the end of their methods semester, were analyzed using the lens of representation as defined by Lesh, Post, and Behr (1987). Trends in their uses of representations were documented.

**108 A**

## **45. Modeling Children's Early Developmental Patterns in Mathematics**

**ORGANIZER/POSTER PRESENTER**

Jesse L. M. Wilkins  
Virginia Tech, Blacksburg, Virginia  
wilkins@vt.edu

Using data from the Early Childhood Longitudinal Study, this study investigates children's developmental patterns in mathematics over the course of kindergarten and first grade. With hierarchical linear modeling techniques, children's patterns of growth and variation in these patterns are modeled using variables associated with student background, educational opportunities, and environment.

**108 A**

## **46. Preservice Teachers' Knowledge of Functions and Its Effect on Lesson Plans**

**ORGANIZER/POSTER PRESENTER**

Matthew S. Winsor  
The University of Texas at El Paso, El Paso, Texas  
mwinsor@utep.edu

This session presents the results of a study that attempted to discover connections between preservice teachers' content knowledge and their ability to plan lessons that are consistent with the NCTM *Standards*. Furthermore, the benefits of a "capstone" experience for preservice teachers, as recommended by the Conference Board of the Mathematical Sciences, will be presented and discussed.

108 A

## 47. The Impact of Locale and Looping on Mathematics Achievement in Tennessee

### ORGANIZER/POSTER PRESENTER

Joseph Jeremy Winters

Middle Tennessee State University, Murfreesboro, Tennessee  
jwinters@mtsu.edu

This poster session will present the findings of a study on the relationship between mathematics achievement and school locale and looping status. Both school locale and the educational practice of looping have a limited research base. This study was conducted in Tennessee for the 2001–02 school year using twelfth- and eighth-grade students.

108 A

## 48. Enhancing Students' Understanding through Effective Use of the Chalkboard

### ORGANIZER/POSTER PRESENTER

Makoto Yoshida

Global Education Resources, Madison, New Jersey  
myoshida@globaledresources.com

In Japan, carefully planned and well-organized chalkboard use during a lesson is considered an important teaching skill that fosters student learning and understanding. This presentation will look at new research data, as well as findings from TIMSS and TIMSS-R, to rethink the way the chalkboard is used in American classrooms.

108 A



Photo by Jim McWilliams. Copyright Philadelphia Convention & Visitors Bureau

**3:00 P.M.–4:00 P.M.**

## **49. NSF Investment in Mathematics Education: Past History and Future Directions**

**ORGANIZER/SPEAKER**

Janice Earle  
National Science Foundation, Arlington, Virginia

**SPEAKER**

Robert E. Floden  
Michigan State University, East Lansing, Michigan

**DISCUSSANTS**

Anna Sfar  
Michigan State University, East Lansing, Michigan, and University of Haifa,  
Haifa, Israel  
Joan Ferrini-Mundy  
Michigan State University, East Lansing, Michigan

This thematic presentation summarizes a research/evaluation project of the National Science Foundation's Directorate for Education and Human Resources. The study described here uses fundamental research orientations and methods, and we report on results and recommendations that may influence investment and policy strategies in the area of mathematics education.

**103 A**

**3:00 P.M.–4:30 P.M.**

## **50. Parents of Color Speak on Math Education: Equity and Social Justice Issues**

**ORGANIZER/SPEAKER**

Eric Gutstein  
University of Illinois at Chicago, Chicago, Illinois  
gutstein@uic.edu

**SPEAKERS**

Danny Bernard Martin  
Contra Costa College, San Pablo, California  
Marta Civil  
University of Arizona, Tucson, Arizona  
Beatriz Quintos  
University of Arizona, Tucson, Arizona  
Jill Bratton  
University of Arizona, Tucson, Arizona



**DISCUSSANT**

Martha Allexaht-Snider  
University of Georgia, Athens, Georgia

This session uses an equity and social justice lens to examine the views of parents of color about their children's mathematics education. Our goal is to contribute to theoretical and practical knowledge on improving the mathematics learning of students of color and reduce the inequities engendered by certain practices in current mathematics education.

**102 AB****51. Some Aspects of Students' and Teachers' Conceptions of Variability****ORGANIZER**

J. Michael Shaughnessy  
Portland State University, Portland, Oregon  
mike@mth.pdx.edu

**SPEAKERS**

Daniel Canada  
Eastern Washington University, Cheney, Washington  
Matthew Ciancetta  
Portland State University, Portland, Oregon  
Kate Best  
Portland State University, Portland, Oregon

**DISCUSSANT**

Cynthia Langrall  
Illinois State University, Normal, Illinois

Research on aspects of students' and preservice teachers' conceptions of variability within several task environments involving their comparisons of two data sets, as well as their predictions for sampling distributions, will be shared. This research is part of an ongoing NSF-sponsored research project that is investigating the development of secondary school students' conceptions of variability.

**103 B**

*Photo by Don Roman. Copyright Pennsylvania Hospital*

**3:00 P.M.–4:30 P.M. (CONTINUED)**

## **52. Assessing Mathematical Reasoning by Embedding Tasks in Contexts**

### **ORGANIZER/PRESENTER**

Beatriz S. D'Ambrosio

Indiana University–Purdue University Indianapolis, Indianapolis, Indiana  
bdambro@iupui.edu

### **PRESENTERS**

Marja van den Heuvel-Panhuizen

Freudenthal Institute, Utrecht, Netherlands

Signe Kastberg

Indiana University–Purdue University Indianapolis, Indianapolis, Indiana

George McDermott

Indiana University–Purdue University Indianapolis, Indianapolis, Indiana

Nivan Saada

Indiana University–Purdue University Indianapolis, Indianapolis, Indiana

### **DISCUSSANT**

Jan de Lange

Freudenthal Institute, Utrecht, Netherlands

Presenters will share different approaches to assessing students' mathematical understanding using contextually rich problems. The first presentation will focus on describing the role of context in assessment. The second will describe the use of NAEP assessment items from fields other than mathematics to study students' mathematical reasoning in context.

**103 C**

**3:00 P.M.–5:30 P.M.**

## **53. Studying Teacher Development through the Lenses of Community and Identity**

### **ORGANIZER/PRESENTER**

Rebecca McGraw

University of Arizona, Tucson, Arizona  
mcgraw@math.arizona.edu

### **PRESENTERS**

Kathleen Lynch

Appalachian State University, Boone, North Carolina

Fran Arbaugh

University of Missouri—Columbia, Columbia, Missouri

**DISCUSSANT**

Laura Van Zoest

Western Michigan University, Kalamazoo, Michigan

In this session, we focus on the benefits and limitations of applying a specific social perspective on learning to the analysis of in-service and preservice mathematics teacher professional development. Following an overview of the theory, participants will use it to analyze data from ongoing research and then reflect on the experience.

**106 AB**

## **54. Using Classroom Videos as a Vehicle for Teacher/Researcher Dialogue**

**ORGANIZER/SPEAKER**

Kathleen M. Morris

American Association for the Advancement of Science Project 2061,

Washington, D.C.

kmorris@aaas.org

**SPEAKER**

Jon Manon

University of Delaware, Newark, Delaware

**FACILITATORS**

Dana Griffith

Appoquinimink School District, Odessa, Delaware

Mary Koster

Appoquinimink School District, Odessa, Delaware

Karen Madden

Colonial School District, New Castle, Delaware

**DISCUSSANT**

Linda Dager Wilson

American Association for the Advancement of Science Project 2061,

Washington, D.C.

This worksession provides a venue for a group of middle school mathematics teachers to pose questions on the data that are gathered in their classrooms, and it represents an authentic opportunity for the professional research community to refocus its attention on the questions of most immediate urgency to classroom practitioners.

**107 B**

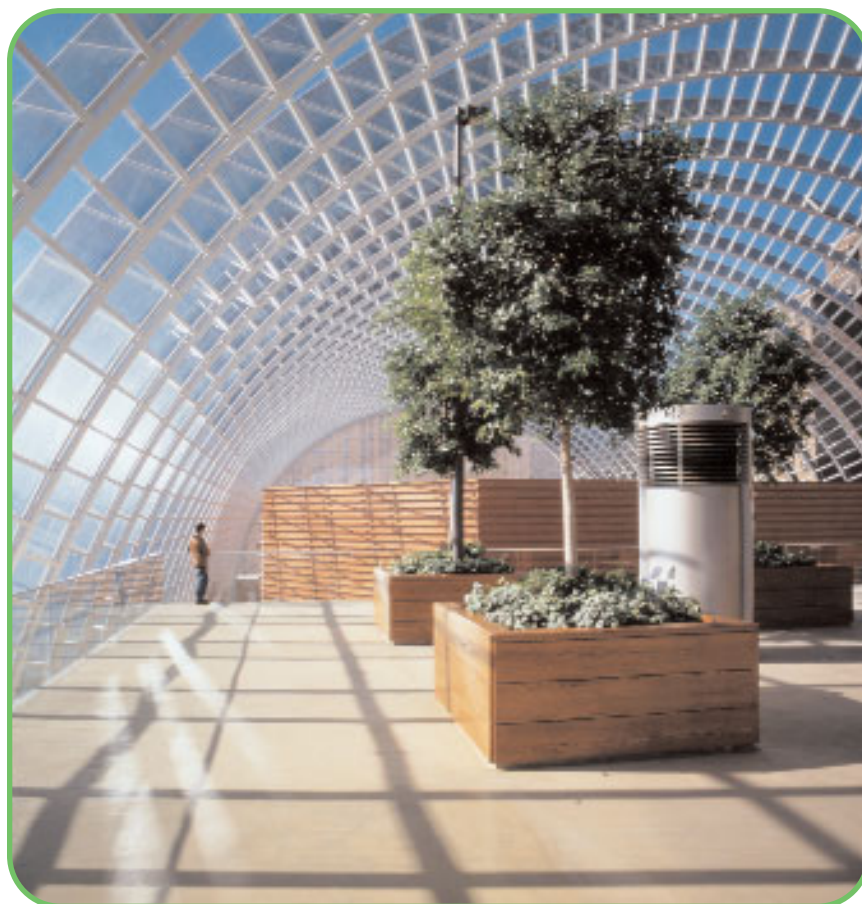
**4:45 P.M.–6:00 P.M.**

## **55. Identifying Issues to Support the Graduate Student Community**

SIG/RME Board and NCTM Research Committee

This session, jointly sponsored by the SIG/RME Board and the NCTM Research Committee, will provide a venue for a discussion with graduate students about how they might be better supported as they enter a new professional learning community. An outcome might be a proposal for how the SIG/RME and RC might continue to support graduate students by, for example, offering sessions during which graduate students might continue to network at subsequent NCTM research pre-session meetings.

**108 B**



*Photo by Román Viñoly. Copyright Kimmel Center for the Performing Arts*

Wednesday, April 21

8:00 A.M.–9:30 A.M.

## 56. Student Achievement and Reform Curricula

### ORGANIZER

Thomas R. Post  
University of Minnesota, Minneapolis, Minnesota  
postx001@umn.edu

### PRESENTERS

Kathleen Cramer  
University of Minnesota, Minneapolis, Minnesota  
Terry Wyberg  
University of Minnesota, Minneapolis, Minnesota  
Barbara Reys  
University of Missouri—Columbia, Missouri  
Harold Schoen  
University of Iowa, Iowa City, Iowa  
Jon D. Davis  
University of Minnesota, Minneapolis, Minnesota  
Yukiko Maeda  
University of Minnesota, Minneapolis, Minnesota

The first presentation will document fifth-grade students' fraction learning among students using the Investigations Curriculum. The second study will examine student achievement patterns and fidelity of implementation in middle school reform classrooms. The third presentation will report on a longitudinal study of reform mathematics curricula and the associated student outcomes. Lastly, a study describing student achievement in reform mathematics classrooms using hierarchical linear models (HLM) will be presented. Finally, the organizer will make a few brief comments before opening up the session for discussion and questions.

102 AB



Photo by Edward Savaria, Jr. Copyright Philadelphia Convention & Visitors Bureau

**8:00 A.M.–9:30 A.M. (CONTINUED)**

## **57. The Dialectic Relationship between Undergraduate and K–12 Research**

**ORGANIZER/PRESENTER**

Chris Rasmussen  
San Diego State University, San Diego, California

**PRESENTERS**

Oh Nam Kwon  
Seoul National University, Seoul, Korea  
Mark Burtch  
Arizona State University, Tempe, Arizona  
Karen Marrongelle  
Portland State University, Portland, Oregon

**DISCUSSANT**

Michelle Stephan  
University of Central Florida, Orlando, Florida

This symposium addresses the need for mutually informative advances to undergraduate and K-12 teaching and learning by reflecting on results of four different teaching experiments in differential equations that were guided by developments at the K-12 level. In turn, our analyses offer expanded and fresh insights into significant issues for K-16 mathematics education.

**103 A**

## **58. Preservice Lesson Study: Dialogue, Challenged Beliefs, Reflective Thinking**

**ORGANIZER/SPEAKER**

Blake E. Peterson  
Brigham Young University, Provo, Utah  
peterson@mathed.byu.edu

**SPEAKERS**

Julie Stafford-Plummer  
Ypsilanti, Michigan  
Thomas E. Ricks  
University of Georgia, Athens, Georgia

**DISCUSSANT**

Brad Glass  
University of Delaware, Newark, Delaware

We have found that the participation of preservice mathematics teachers in a semester-long lesson study group offers a good context for generating rich mathematical dialogue that challenges these teachers' beliefs about being mathematical experts and perpetuates the reflective thinking processes described by Dewey and Schon.

**103 B**

## **59. A National Study of Leadership in Mathematics Education**

### **ORGANIZER/PRESENTER**

Gail Burrill

Michigan State University, East Lansing, Michigan

### **PRESENTERS**

Joan Ferrini-Mundy

Michigan State University, East Lansing, Michigan

Robert Reys

University of Missouri—Columbia, Columbia, Missouri

### **DISCUSSANT**

Glenda Lappan

Michigan State University, East Lansing, Michigan

This study provides insights into the characteristics and preparation of leaders in mathematics education and the nature of doctoral programs at selected institutions and job postings in mathematics education. The results raise questions and have implications for the field in how we nurture and prepare new leaders for the future.

**105 AB**



*Photo by Edward Savaria, Jr. Copyright Philadelphia Convention & Visitors Bureau*

**8:00 A.M.–9:30 A.M. (CONTINUED)**

## **60. New Conceptions and Strategies for the Doctoral Preparation of Researchers**

### **ORGANIZER/PRESENTER**

James Fey  
University of Maryland, College Park, Maryland  
jimfey@mail.umd.edu

### **PRESENTERS/FACILITATORS**

M. Kathleen Heid  
The Pennsylvania State University, University Park, Pennsylvania  
James Hiebert  
University of Delaware, Newark, Delaware  
Patricia Campbell  
University of Maryland, College Park, Maryland

This session will describe activities and findings of the Mid-Atlantic Center for Mathematics Teaching and Learning in the design, operation, and evaluation of an innovative program of doctoral and postdoctoral education for specialists in mathematics education research. It will engage participants in the discussion of key issues.

**106 AB**

## **61. Measure Up: A Research Perspective on Algebra for Young Children**

### **ORGANIZER/PRESENTER**

Barbara Jo Dougherty  
University of Hawaii, Honolulu, Hawaii  
bdougher@hawaii.edu

### **SPEAKER**

Hannah Slovin  
University of Hawaii, Honolulu, Hawaii

### **DISCUSSANTS**

Lena Licon Khisty  
University of Illinois at Chicago, Chicago, Illinois  
Lesley Lee  
University of Quebec, Montreal, Quebec

Measure Up (MU) focuses on young children's development of algebraic concepts by using measurement as the context for all mathematics. Participants examine sample student work and videos of this approach. Presenters and participants together explore impacts of changing the mathematics as in MU on teaching and learning.

**108A**



**8:00 A.M.—10:30 A.M.**

## **62. From Tools to Knowledge and from Knowledge to Tools**

### **ORGANIZER**

Barbara J. Pence  
San Jose State University, San Jose, California  
pence@math.sjsu.edu

### **PRESENTERS**

Colette Laborde  
University Joseph Fourier—CNRS, Grenoble, France  
Carolyn Kieran  
Université du Québec à Montréal, Montreal, Quebec  
Jean-Marie Laborde  
CABRI Log, Grenoble, France

### **DISCUSSANT**

Patrick Thompson  
Vanderbilt University, Nashville, Tennessee

Technology as a tool can take on various meanings. It can be an object used for a specific purpose, or it can be transformed into an instrument for the construction of knowledge. This symposium addresses the process of instrumentation.

**103 C**



*Photo by Rob Ikeler. Copyright Pennsylvania Horticultural Society*

**8:00 A.M.–10:30 A.M. (CONTINUED)**

## **63. Representational Models for the Teaching and Learning of Mathematics**

### **ORGANIZER/PRESENTER**

Robert M. Capraro  
Texas A&M University, College Station, Texas  
rcapraro@coe.tamu.edu

### **PANELISTS**

Gerald Kulm  
Texas A&M University, College Station, Texas  
Vic Willson  
Texas A&M University, College Station, Texas  
Mary Margaret Capraro  
Texas A&M University, College Station, Texas  
Adam Harbaugh  
Texas A&M University, College Station, Texas  
Judy Taylor  
LeTourneau University, Longview, Texas  
Ye Sun  
Texas A&M University, College Station, Texas  
Laura Sebesta  
Snook Independent School District, Snook, Texas  
Amy Anding  
Bryan Independent School District, Bryan, Texas

### **DISCUSSANT**

Frank Lester  
Indiana University, Bloomington, Indiana

This session explores research-based answers to the use and role of idiosyncratic and mathematical representations and the mechanism of inductive representational bridging. University and school-site research partners will discuss data from the second year of a five-year longitudinal study providing research findings on the role of representation.

**107 B**

**10:00 A.M.–11:30 A.M.**

## **64. Refocusing on Mathematical Modeling to Account for Learning and Discourse**

### **ORGANIZER**

Rose Mary Zbiek

The Pennsylvania State University, University Park, Pennsylvania  
rmz101@psu.edu

### **PRESENTERS**

AnnaMarie Connor

The Pennsylvania State University, University Park, Pennsylvania

Gina M. Foletta

Northern Kentucky University, Highland Heights, Kentucky

### **DISCUSSANT**

Tom Evitts

Shippensburg University, Shippensburg, Pennsylvania

Existing definitions and diagrams for mathematical modeling fail to account for how mathematical learning and understanding arise as students engage in modeling tasks (or in applied problems). Data from secondary and tertiary settings illustrate the potential of an alternative vision and its implications for research, teacher education, and curriculum development.

**102 AB**



*Photo by Román Viñoly. Copyright Kimmel Center for the Performing Arts*

**10:00 A.M.–11:30 A.M. (CONTINUED)**

## **65. Students' Perceptions of, and Engagement with, Mathematics Reform Practices**

### **ORGANIZER/SPEAKER**

Carol E. Malloy

University of North Carolina at Chapel Hill, Chapel Hill, North Carolina  
cmalloy@email.unc.edu

### **SPEAKERS**

Mark W. Ellis

University of North Carolina at Chapel Hill, Chapel Hill, North Carolina  
Jon Star

Michigan State University, East Lansing, Michigan

Amanda Jansen Hoffman

Michigan State University, East Lansing, Michigan

Gary Lewis

Michigan State University, East Lansing, Michigan

John P. Smith III

Michigan State University, East Lansing, Michigan

### **DISCUSSANT**

Barbara Reys

University of Missouri—Columbia, Columbia, Missouri

These papers share empirical findings concerning the impact of *Standards*-based pedagogy and curricula on student outcomes beyond achievement on standardized assessments. The Mathematical IDentity Development and LEarning project (MIDDLE) and the Mathematical Transitions Project seek to learn about the development of the whole person, including disposition, identity, engagement, and conceptual understanding.

**103 A**

## **66. Examining Parent-Child-School Relationships in Teaching and Learning Mathematics in Low-Income Communities**

### **ORGANIZER**

Janine T. Remillard

University of Pennsylvania, Philadelphia, Pennsylvania  
karajack@dolphin.upenn.edu

### **SPEAKERS**

Kara Jones Jackson

University of Pennsylvania, Philadelphia, Pennsylvania

Emily Bernier

University of Arizona, Tucson, Arizona

David Baker  
University of Brighton, East Sussex, United Kingdom  
Eva Gold  
Research for Action, Philadelphia, Pennsylvania  
Diane Anderson  
Swarthmore College, Swarthmore, Pennsylvania

**DISCUSSANT**

Jean Anyon  
City University of New York, New York, New York

This symposium aims to further the conversation around framing parents as resources in their children's mathematics education, and in doing so to highlight the implications of understanding and accounting for the connections between home and school mathematical activity as a means of improving mathematics teaching and learning within low-income communities.

**103 B**

## **67. Writing about Research for a General Practitioner**

**ORGANIZER**

Sandy Berger  
Reston, Virginia

The editorial panels of *Teaching Children Mathematics*, *Mathematics Teaching in the Middle School*, and the *Mathematics Teacher* will present tips and techniques for writing about research for a more general audience, followed by a question-and-answer period. We encourage you to bring specific ideas or manuscripts for discussion in individual or in small groups.

**105 AB**

## **68. Publishing in the *Journal for Research in Mathematics Education***

**ORGANIZER/PRESENTERS**

JRME Editorial Panel, NCTM, Reston, Virginia

This session will present information about publishing research in the *JRME*, particularly dissertation research. The purpose is to acquaint new researchers with adapting a longer work into an article length paper that meets the standards of the *JRME*. In addition to an overview of the review process from the editors, presentations will be made by authors who have successfully published in the *JRME*.

**106 AB**

**10:30 A.M.—12:00 NOON**

## **69. Perspectives on Oral History: Teachers, Historians, and Community Memory**

### **ORGANIZER/PRESENTER**

David L. Roberts  
Laurel, Maryland  
robertsdl@aol.com

### **PRESENTERS**

Penelope H. Dunham  
Muhlenberg College, Allentown, Pennsylvania  
Karen Dee Michalowicz  
Langley School, McLean, Virginia  
James D. Gates  
Reston, Virginia

This session will provide an overview of oral history as a research technique. In particular, panelists will discuss the background, status, and future direction of NCTM's Oral History Project and its significance for mathematics educators at all levels, for historians, and for NCTM's institutional memory.

**103 C**

**1:30 P.M.—2:30 P.M.**

## **70. In What Ways Do Students Meaningfully Generalize Algebraic Relationships?**

### **ORGANIZER/PRESENTER**

Diana F. Steele  
Northern Illinois University, DeKalb, Illinois  
dsteele@math.niu.edu

I will present findings from a one-month teaching experiment in which I investigated in what ways seventh-grade students generalize patterns verbally and symbolically using geometric problem situations. The main questions that guided my research were (1) What enables students to make generalizations? (2) What modes of representations do they use? (3) In what ways did they understand concepts of variable and function?

**107 B**

**1:30 P.M.–3:00 P.M.**

## **71. “Theory” in Mathematics Education Scholarship**

### **ORGANIZER/PRESENTER**

Patricio Herbst

University of Michigan, Ann Arbor, Michigan  
pgherbst@umich.edu

### **PRESENTER**

Edward Silver

University of Michigan, Ann Arbor, Michigan

### **COMMENTERS**

Jill Adler

University of the Witwatersrand, Johannesburg, South Africa

Anna Sfar

Michigan State University, East Lansing, Michigan

Frank Lester

Indiana University, Bloomington, Indiana

James Greeno

Stanford University, Stanford, California

The presenters describe the diverse ways in which “theory talk” has become a part of mathematics education scholarship and how it has shaped the way the field conceives of and treats its objects of study.

**102 AB**



*Photo by Jim McWilliams. Copyright Philadelphia Convention & Visitors Bureau*

**1:30 P.M.–3:00 P.M. (CONTINUED)**

## **72. Building Practice from the Ground Up: The Potential of Early Field Experiences**

### **ORGANIZER/SPEAKER**

Denise S. Mewborn  
University of Georgia, Athens, Georgia  
dmewborn@coe.uga.edu

### **SPEAKERS**

Laura Van Zoest  
Western Michigan University, Kalamazoo, Michigan  
Tracey Smith  
Charles Sturt University, Wagga Wagga, New South Wales, Australia  
David W. Stinson  
University of Georgia, Athens, Georgia

### **DISCUSSANT**

Lew Romagnano  
Metropolitan State College of Denver, Denver, Colorado

We will present our research on various pedagogical strategies for helping preservice teachers engage in field experiences in order to elucidate what preservice teachers can learn from field experiences and how particular pedagogical strategies on the part of teacher educators can enhance that learning. We will include contextualizing methods courses by teaching in community, the use of case studies as a pedagogical tool for mathematics education, and the impact of consistent experiences in a teacher education program.

**103 A**

## **73. On the Effectiveness of Mathematics Curriculum: Examining the Evaluations**

### **ORGANIZER/PRESENTER**

Jere Confrey  
Washington University, St. Louis, Missouri

### **PRESENTERS**

Vicki Stohl  
Mathematical Sciences Education Board, Washington, D.C.  
Douglas Grouws  
University of Missouri—Columbia, Columbia, Missouri  
Carolyn Mahoney  
Elizabeth City State University, Elizabeth City, North Carolina  
Patrick Thompson  
Vanderbilt University, Nashville, Tennessee



The Mathematical Sciences Education Board of the National Research Council has completed a review of the evaluation data on thirteen NSF-supported and six commercially generated mathematics curriculum materials. This review, its accompanying framework for evaluation, and recommendations for future evaluation of mathematics curriculum materials is the subject of this session.

**103 B**

## **74. Coordinating Research on Student Learning, Teacher Cognition, and Practices**

### **ORGANIZER**

John Olive

University of Georgia, Athens, Georgia  
jolive@coe.uga.edu

### **SPEAKERS**

Kay McClain

Vanderbilt University, Nashville, Tennessee

Megan Loef Franke

University of California, Los Angeles, Los Angeles, California

Andrew G. Izsák

University of Georgia, Athens, Georgia

### **DISCUSSANT**

Randolph Philipp

San Diego State University, San Diego, California

Three major research projects will illustrate advancements for research and practice in mathematics education that can be gained through coordinated analyses of student learning, teacher cognition, and classroom practices. The presentations will articulate research questions, describe methods, and identify difficulties that arise from the complex research designs.

**103 C**

## 75. The Impact of Standards-Based Middle School Mathematics Curricula—Three Studies

### ORGANIZER

Robert Reys

University of Missouri—Columbia, Columbia, Missouri  
ReysR@missouri.edu

### SPEAKERS

Gerald Kulm

Texas A&M University, College Station, Texas

Mary Shafer

Northern Illinois University, DeKalb, Illinois

Denisse R. Thompson

University of South Florida, Tampa, Florida

Oscar Chavez

University of Missouri—Columbia, Columbia, Missouri

James Tarr

University of Missouri—Columbia, Columbia, Missouri

How do standards-based mathematics curricula affect teachers and student learning? Three longitudinal but independent research projects with a common focus on middle school mathematics will be reported. They share common goals of examining whether and under what conditions reform-oriented middle school mathematics curricula have an impact on student learning.

105 AB

## 76. Improving Student Achievement in Mathematics in Low-Income, High-Minority Schools through Teacher Learning and Access to Computer Technology

### ORGANIZER

Karma G. Nelson

Montana State University, Bozeman, Montana  
knelson@math.montana.edu

### SPEAKERS

Jennifer Kosiak

Montana State University, Bozeman, Montana

David R. Erickson

University of Montana, Missoula, Montana

Helen Gerretson

University of Northern Colorado, Greeley, Colorado

Jeff Farmer

University of Northern Colorado, Greeley, Colorado

Reinsvold

University of Northern Colorado, Greeley, Colorado  
Roy Chambers  
Portland Public Schools Professional Development Academy, Portland, Oregon  
Cheryl Rectanus  
Portland Public Schools Professional Development Academy, Portland, Oregon

The professional development staff from the Center for Learning and Teaching in the West will discuss the obstacles and challenges they face in encouraging the integration of computers to improve mathematical instruction and enhance student learning in low-income, high-minority schools across three western states.

**106 AB**

**1:30 P.M.–3:00 P.M.**

## **77. Wireless Technology in Mathematics Education: Reflections and Directions**

### **ORGANIZER/PRESENTER**

Michael Meagher  
The Ohio State University, Columbus, Ohio  
meagher.10@osu.edu

### **PRESENTERS**

Louis Abrahamson  
Better Education Inc., Yorktown, Virginia  
Marlena Herman  
Rowan University, Glassboro, New Jersey  
Douglas Owens  
The Ohio State University, Columbus, Ohio  
Frank Demana  
The Ohio State University, Columbus, Ohio

This session reflects on lessons learned from a research project on the use of a Classroom Communication System (CCS) in secondary school mathematics classrooms and offers directions for further research in classroom connectivity.

**108 A**

**3:30 P.M.–4:45 P.M.**

## **78. An Agenda for Studying the Impact of the *Standards***

### **MODERATOR**

Robert Floden  
Michigan State University, East Lansing, Michigan

### **ORGANIZERS/SPEAKERS**

Joan Ferrini-Mundy  
Michigan State University, East Lansing, Michigan  
Frank Lester  
Indiana University, Bloomington, Indiana

### **DISCUSSANTS**

Diane Briars  
Pittsburgh Public Schools, Pittsburgh, Pennsylvania  
Margaret Goetz  
Consortium for Policy Research in Education, Philadelphia, Pennsylvania  
Barry Sloane  
National Science Foundation, Arlington, Virginia

In this session NCTM's Standards Impact Research Group will provide a synthesis that highlights key themes, methodological concerns, and infrastructure recommendations of the research agenda emerging from the September 2003 Research Catalyst Conference and follow-up discussions. Discussants will comment from their perspectives as policy researchers, practitioners, and representatives of federal agencies.

**114**



*Photo by Jim McWilliams. Copyright Philadelphia Convention & Visitors Bureau*

## Index of Speakers

Abrahamson, Louis . . . . .	77	Capraro, Robert M. . . . .	63
Adler, Jill . . . . .	71	Carlson, Marilyn . . . . .	15
Alejandre, Suzanne . . . . .	8	Carter, Michael Andrew . . . . .	5
Allexsaht-Snider, Martha . . . . .	50	Casa, Tutita M. . . . .	20
An, Shuhua . . . . .	7	Chambers, Roy . . . . .	76
Anderson, Diane . . . . .	66	Chazan, Daniel . . . . .	15
Anding, Amy . . . . .	63	Chavez, Oscar . . . . .	75
Anhalt, Cynthia . . . . .	44	Ciaccetta, Matthew . . . . .	51
Anyon, Jean . . . . .	66	Civil, Marta . . . . .	15, 50
Arbaugh, Fran . . . . .	53	Colunga, Ernesto . . . . .	23
		Confrey, Jere . . . . .	73
Baker, David . . . . .	66	Connor, AnnaMarie . . . . .	64
Baldi, Stephane . . . . .	14	Cooper, Thomas J. . . . .	3
Baturo, Annette R. . . . .	3	Cramer, Kathleen . . . . .	56
Becker, Jerry P. . . . .	11	Cwikla, Julie . . . . .	21
Behm, Stephanie L. . . . .	16		
Berger, Sandy . . . . .	67	D'Ambrosio, Beatriz S. . . . .	52
Berkaliev, Zaur . . . . .	17	Davenport, Linda . . . . .	5
Bernard, John E. . . . .	35	Davis, Jon D. . . . .	56
Bernier, Emily . . . . .	66	Dawson, Sandy J. . . . .	13
Berry, Betsy . . . . .	10	de Lange, Jan . . . . .	52
Berry, Robert Q., III . . . . .	18	Demana, Frank . . . . .	77
Best, Kate . . . . .	51	Diaz, Donna P. . . . .	22
Blagmon, Kimberly L. . . . .	6	DiGiano, Christopher J. . . . .	8
Bratton, Jill . . . . .	50	Disston, Jacob . . . . .	42
Briars, Diane . . . . .	78	Dominguez, Angeles . . . . .	23
Burghes, David N. . . . .	11	Dougherty, Barbara Jo . . . . .	61
Burrill, Gail . . . . .	59	Drew, Polly . . . . .	29
Burtch, Mark . . . . .	57	Dunham, Penelope H. . . . .	69
Campbell, Patricia . . . . .	60	Earle, Janice . . . . .	49
Canada, Daniel . . . . .	51	Ellis, Mark W. . . . .	65
Caniglia, Joanne C. . . . .	19	English, Lyn . . . . .	10
Capraro, Mary Margaret . . . . .	63	Erbas, Ayhan Kursat . . . . .	29

## Index of Speakers continued

Erickson, David R. . . . .	76	Ishii, Drew K. . . . .	27
Essex, Nancy K. . . . .	12	Izsák, Andrew G. . . . .	74
Evitts, Tom . . . . .	64		
		Jackson, Kara Jones . . . . .	66
Farmer, Jeff . . . . .	76	Johnson-Koziuk, Kimla . . . . .	25
Ferrini-Mundy, Joan . . . . .	2, 49, 59, 78	<i>JRME</i> Editorial Panel . . . . .	68
Fey, James T. . . . .	15, 60		
Fi, Cos D. . . . .	24	Kastberg, Signe . . . . .	52
Floden, Robert E. . . . .	49, 78	Kaur, Berinderjeet . . . . .	11
Foletta, Gina M. . . . .	64	Kehle, Paul E. . . . .	12
Fonzi, Judi . . . . .	9	Khisty, Lena Licon . . . . .	61
Franke, Megan Loef . . . . .	74	Kieran, Carolyn . . . . .	62
		Klein, Valerie . . . . .	6
Garnett, Shawn . . . . .	25	Kosiak, Jennifer . . . . .	76
Gates, James D. . . . .	69	Koster, Mary . . . . .	54
Gau, Tonya . . . . .	38	Kulm, Gerald . . . . .	63, 75
Gerretson, Helen . . . . .	76	Kwon, Oh Nam . . . . .	57
Glass, Brad . . . . .	58		
Goetz, Margaret . . . . .	78	Lambdin, Diana V. . . . .	12
Gold, Eva . . . . .	66	Langrall, Cynthia . . . . .	51
Grandau, Laura . . . . .	38	Laborde, Colette . . . . .	62
Grant, Cathy Miles . . . . .	5	Laborde, Jean-Marie . . . . .	62
Greeno, James . . . . .	71	Lappan, Glenda . . . . .	59
Griffith, Dana . . . . .	54	Leapard, Barbara . . . . .	19
Grouws, Douglas . . . . .	73	Learned, Majory . . . . .	42
Gutstein, Eric . . . . .	50	Ledford, Sarah . . . . .	29
		Lee, Lesley . . . . .	61
Hartmann, Christopher E. . . . .	26	Leer, Mary N. . . . .	34
Harbaugh, Adam . . . . .	63	Leite, Walter J. . . . .	35
Heid, M. Kathleen . . . . .	60	Leonard, Jacqueline . . . . .	6
Herbst, Patricio . . . . .	71	Lesh, Richard . . . . .	15
Herman, Marlina . . . . .	77	Lester, Frank . . . . .	2, 63, 71, 78
Hiebert, James . . . . .	60	Lewis, Gary . . . . .	65
Huffman, Amanda Jansen . . . . .	65	Li, Lanying . . . . .	7

## Index of Speakers continued

Lloyd, Gwendolyn M. . . . .	28	Papakonstantinou, Anne . . . . .	31
Lynch, Kathleen . . . . .	53	Park, Sung Sun . . . . .	32
Madden, Karen . . . . .	54	Patterson, Nikita D. . . . .	43
Maeda, Yukiko . . . . .	56	Pence, Brabara J. . . . .	62
Maher, Carolyn . . . . .	10	Perdue, Diana S. . . . .	33
Mahoney, Carolyn . . . . .	73	Perry, Rebecca R. . . . .	34
Malloy, Carol E. . . . .	65	Peterson, Blake E. . . . .	58
Manon, Jon . . . . .	54	Philipp, Randolph . . . . .	74
Marrongelle, Karen . . . . .	57	Porn, Mary Jo Tavormina . . . . .	5
Martin, Danny Bernard . . . . .	50	Post, Thomas R. . . . .	56
McClain, Kay . . . . .	5, 74	Pratt, Dave . . . . .	10
McCormick, Kelly . . . . .	12	Qi, Chunxia . . . . .	7
McDermott, George . . . . .	52	Quintos, Beatriz . . . . .	50
McGraw, Rebecca . . . . .	53	Ragent, Jesse . . . . .	42
McIver, Angela . . . . .	6	Ramirez, Olga M. . . . .	35
Meagher, Michael . . . . .	77	Rasmussen, Chris . . . . .	57
Mewborn, Denise S. . . . .	72	Rast, Jeanne D. . . . .	36
Michalowicz, Karen Dee . . . . .	69	Rectanus, Cheryl . . . . .	76
Middleton, James . . . . .	15	Reinsvold, Lori . . . . .	76
Miller, Barbara . . . . .	9	Remillard, Janine T. . . . .	6, 66
Morris, Kathleen M. . . . .	54	Renninger, K. Ann . . . . .	8
Murray, Natasha . . . . .	6	Reys, Barbara . . . . .	56, 65
NCTM Research Committee . . . . .	55	Reys, Robert . . . . .	15, 59, 75
Nelson, Karma G. . . . .	76	Ricks, Thomas E. . . . .	58
Nielsen, Leslie . . . . .	8	Roberts, David L. . . . .	69
Okoka, Clara N. . . . .	43	Roberts, Elisabeth . . . . .	44
Olive, John . . . . .	74	Romagnano, Lew . . . . .	72
O'Loughlin, Noreen . . . . .	11	Rose, George . . . . .	42
Orrill, Chandra . . . . .	29	Rousseau, Celia K. . . . .	37
Ortiz, Enrique . . . . .	30	Rubel, Laurie H. . . . .	38
Owens, Douglas . . . . .	77	Saada, Nivan . . . . .	52

## Index of Speakers continued

Schoen, Harold	56	van den Heuvel-Panhuizen, Marja	52
Sebesta, Laura	63	Van Zoest, Laura	53, 72
Sfard, Anna	49, 71	Waddell, Lanette	6
Shafer, Mary	75	Wallace, Raven M.	4
Shaughnessy, J. Michael	10, 51	Ward, Robin A.	44
Shumar, Wesley	8	Warren, Elizabeth	3
Siedel, Helen	4	Weiss, Iris	9
SIG/RME Board	55	Wilkins, Jesse L. M.	45
Silver, Edward A.	1, 71	Willson, Vic	63
Sinn, Robb	39	Wilson, Linda Dager	54
Slaughter, Marian	38	Winsor, Matthew S.	46
Sloane, Barry	78	Winters, Joseph Jeremy	47
Slovin, Hannah	61	Wu, Zhonghe	7
Smith, John P., III	65	Wyberg, Terry	56
Smith, Tracey	72	Yoshida, Makoto	48
Spielman, Laura Jacobsen	40	Yu, Li	7
Stafford-Plummer, Julie	58	Zbiek, Rose Mary	15, 64
Star, Jon	65	Zilliox, Joseph	13
Steele, Diana F.	70		
Steinthorsdottir, Olof B.	41		
Stephan, Michelle	57		
Stinson, David W.	72		
Stohl, Hollylynne	10		
Stohl, Vicki	73		
Stylianides, Andreas	4		
Sun, Ye	63		
Takahashi, Akihiko	42		
Tarr, James E.	10, 75		
Taylor, Judy	63		
Thomas, Christine D.	43		
Thompson, Denisse R.	11, 75		
Thompson, Patrick	62, 73		



# General Evaluation Form

1. The most useful part of the Pre-session for me was ...
2. The least useful part of the Pre-session for me was ...
3. Were there research topics that you expected to be included but weren't? If so, what were they?
4. Sessions were designed to create opportunities for interaction between presenters and participants. Please comment on the opportunities for such interaction.
5. Which of the following best describes you? (Please circle as many as apply.)
  - a. Graduate student
  - b. School administrator or supervisor
  - c. K-12 teacher
  - d. Researcher
  - e. Mathematician
  - f. Higher education/mathematics education
  - g. Higher education/other
  - h. Professional developer
  - i. Other
6. How often have you attended the Research Pre-session? (Please circle one.)
  - a. First time
  - b. Second time
  - c. Third time
  - d. More often than three times
7. Please feel free to offer any additional comments.

## Notes





## Notes

