



Program for the Research Preession

April 7-9, 2008

NCTM 2008 Annual Meeting and Exposition

Becoming Certain about Uncertainty

April 9-12, 2008 ■ Salt Lake City, Utah



NATIONAL COUNCIL OF
TEACHERS OF MATHEMATICS

Research Pre-session Planning Committee

NCTM Research Committee

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East Lansing, Michigan*

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*South Redford School District;
University of Michigan
Ypsilanti, Michigan*

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*North Carolina State University
Raleigh, North Carolina*

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*New York University
New York, New York*

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*Virginia Polytechnic Institute
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Announcements

- Registration will be held in the North Foyer on the lower level of the Salt Palace Convention Center. The times are Monday, 4:30 p.m. to 7:00 p.m., and Tuesday, 7:00 a.m. to 3:00 p.m. Registration is required for attendance, and badges must be worn for all sessions.
- On Wednesday, the Research Pre-session is open to all registered attendees to the NCTM Annual Meeting and the Annual NCSM Conference. Badges from these conferences will be required for attendance for all sessions on Wednesday.
- A light reception will be held on Monday evening in the North Foyer from 8:30 p.m. to 10:00 p.m. following the opening session at 7:00 p.m. in Grand Ballroom A.
- Research posters will be available for viewing and discussion with the presenters in the North Foyer from 4:45 p.m. to 6:00 p.m. on Tuesday.
- The Call for Papers for the next Research Pre-session, to be held in Washington, D.C., in 2009, will be available online in June 2008.
- Be sure to visit the Exhibit Hall for the NCTM Bookstore, which has a special table on research.

The publications and programs of the National Council of Teachers of Mathematics present a variety of viewpoints. The views expressed or implied in this publication, unless otherwise noted, should not be interpreted as official positions of the Council. Reference to particular commercial products by a speaker should not be construed as an NCTM endorsement of said products(s). NCTM reserves the right to change speakers, change facilities, or modify program content.

NCTM does not sell or distribute member e-mail addresses in compliance with Federal privacy policies. However, some speakers on this program have elected to print their e-mail addresses as a means for individual correspondence with conference attendees. Unsolicited commercial e-mail or unsolicited bulk e-mail, whether or not that e-mail is commercial in nature, is expressly prohibited. Any use of e-mail addresses beyond personal correspondence is not authorized by NCTM.

On behalf of the Research Committee of the National Council of Teachers of Mathematics (NCTM) and the Special Interest Group/Research in Mathematics Education of the American Educational Research Association, we welcome you to NCTM's Research Pre-session. The Research Pre-session serves multiple purposes. First, the Research Pre-session annually brings researchers together to examine and discuss current issues in mathematics education. Second, it is an opportunity for researchers to receive feedback on their work and to benefit from exposure to alternative points of view. Third, the Research Pre-session is an opportunity to capitalize on the collective wisdom available when researchers and practitioners come together to discuss mathematics education and research. Finally, the Research Pre-session affords beginning scholars opportunities to interact and network with veteran researchers in the field.

The Pre-session program includes 38 Individual Sessions, 23 Research Symposia, 18 Work Sessions, and 14 Poster Sessions. Overall there were 233 proposals submitted for the Pre-session, including 135 for Individual Sessions, 28 for Research Symposia, 25 for Work Sessions, and 45 for Poster Sessions.

We would like to thank the members of NCTM's Research Committee, members of the executive board for the SIG/RME, and other members of the research community who served as reviewers. Your work is greatly valued and appreciated. Moreover, we would like to thank the staff at NCTM for helping us with the logistics of the conference, registration, printing the program, and other details. Also, we would like to thank all the presenters for agreeing to participate. Finally, we would like to thank everyone in attendance, and we hope that you will find the conference helpful to you in a number of ways.

Sincerely,

Marilyn E. Strutchens

*Chair of the Research Committee
Auburn University, Auburn, Alabama*

Patricia F. Campbell

*Chair of SIG/RME –AERA
University of Maryland, College Park, Maryland*

Judith Reed

*Director of Research
NCTM, Reston, Virginia*



Salt Palace; © Courtesy the Salt Lake Convention & Visitors Bureau

Monday, April 7, 2008

7:00 p.m.–8:30 p.m.

1. Exploring the Mathematics in Mathematics Education

OPENING SESSION

Beliefs about the nature of mathematics, whether explicit or hidden, lie at the center of nearly every aspect of our professional lives. In my talk I will outline a framework for examining the different mathematical cultures represented in our field and the implications for providing all students access to mathematics.

Steven Williams

williams1@mathed.byu.edu

Brigham Young University, Provo, Utah

Grand Ballroom A, Capacity: 700



City and County Building; © Courtesy the Salt Lake Convention & Visitors Bureau

Tuesday, April 8, 2008

8:30 a.m.–9:00 a.m.

2. Policy Influences on Four Districts' CMP Implementations

INDIVIDUAL PAPERS (30-MINUTE SESSION)

This study investigates four districts' resource commitments and instructional priorities in their efforts to implement the Connected Mathematics Program (CMP). These results outline the impact of multiple initiatives on the mix of resources necessary to implement CMP effectively, suggesting that a more dynamic view is required to articulate districts' resource commitments.

Jeffrey Choppin

University of Rochester, Rochester, New York

Grand Ballroom A, Capacity: 120

3. Using Prediction in the Mathematics Classroom

INDIVIDUAL PAPERS (30-MINUTE SESSION)

This session will present the results of a study on how prediction can be used as an instructional practice to develop students' mathematical understanding and reasoning in a middle school algebra context. Students' predictions and reasoning will be described, and the effectiveness of using prediction will be addressed.

Ok-Kyeong Kim

ok-kyeong.kim@wmich.edu

Western Michigan University, Kalamazoo, Michigan

Lisa Kasmer

Western Michigan University, Kalamazoo, Michigan

Grand Ballroom B, Capacity: 120



8:30 a.m.–10:00 a.m.

4. Analyzing High-Stakes Assessments: Implications for Mathematics Educators

WORK SESSION (90-MINUTE SESSION)

An in-depth, state-by-state analysis of high-stakes high school tests suggests that it might be useful to focus attention on (1) concepts that emerge as “tough to teach” because students’ scores indicate they are tough to learn, and (2) the relationship of cognitive demand to achievement.

Tom Dick

Oregon State University, Portland, Oregon

Gail Burrill

Michigan State University, East Lansing, Michigan

Grand Ballroom C, Capacity: 100

5. Research Paradigms on Teaching and Learning Proof across the Grades

WORK SESSION (90-MINUTE SESSION)

This work session is designed to identify research paradigms on teaching and learning proof across grades K–16 and what we have learned within these paradigms. Understanding this should facilitate communication among researchers and help us build on one another’s work, thus addressing a major challenge in mathematics education research on proof.

Maria Blanton

mblanton@umassd.edu

Kaput Center, University of Massachusetts Dartmouth, North Dartmouth, Massachusetts

Patricio Herbst

University of Michigan, Ann Arbor, Michigan

Eric Knuth

University of Wisconsin—Madison, Madison, Wisconsin

Chris Rasmussen

San Diego State University, San Diego, California

Despina Stylianou

City University of New York—City College of New York, New York, New York

Keith Weber

Rutgers University, New Brunswick, New Jersey

Grand Ballroom D, Capacity: 100

6. Deepening Teachers' Knowledge and Using Teacher-Leaders: What Do We Know?

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

Synthesizing what we know from empirical research and from practice-based insights is crucial for a more complete understanding of the existing knowledge base about deepening teachers' content knowledge in mathematics and using teacher-leaders. This symposium outlines a methodology for knowledge synthesis and describes the results in these two areas.

Barbara Miller

bmiller@edc.org

Education Development Center, Newton, Massachusetts

Dan Heck

Horizon Research, Inc., Chapel Hill, North Carolina

Grand Ballroom E, Capacity: 120

7. A Longitudinal Investigation of Curricular Effect on Algebra Learning

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

This symposium presents initial findings from a longitudinal project that examined the effects of the Connected Mathematics Program and more traditional middle school mathematics curricula. The impact on students' learning of algebra will be reported along with the implementation conditions that arise in an urban setting.

Jinfa Cai

jcai@math.udel.edu

University of Delaware, Newark, Delaware

John Moyer

Marquette University, Milwaukee, Wisconsin

Bikai Nie

University of Delaware, Newark, Delaware

Jeffrey Shih

University of Nevada, Las Vegas, Las Vegas, Nevada

Ning Wang

Widener University, Chester, Pennsylvania

Janice Earle

National Science Foundation, Arlington, Virginia

Discussant: Robert Reys

University of Missouri—Columbia, Columbia, Missouri

Grand Ballroom F, Capacity: 120

8. Learning and Teaching Generalization in Algebra

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

This research symposium draws on research from varied studies on students' thinking, providing a framework to guide the teaching and learning of algebraic generalization. We focus on the processes of statement clarifying, domain defining, and justifying to assist students in recognizing the general nature of their algebraic generalizations.

John Kirk Lannin

LanninJ@missouri.edu

University of Missouri—Columbia, Columbia, Missouri

Brian E. Townsend

University of Northern Iowa, Cedar Falls, Iowa

David D. Barker

Illinois State University, Normal, Illinois

Grand Ballroom G, Capacity: 120

9. Learning Practice through Practice: Designing a Practice-Based Course

WORK SESSION (90-MINUTE SESSION)

This session explores theoretical and pragmatic dimensions of designing a methods course about practice. We will collectively analyze and discuss artifacts from a practice-based methods course to conceptualize better what it means for a course to be focused on practice and to understand better the ramifications of these concepts.

Timothy A. Boerst

University of Michigan, Ann Arbor, Michigan; South Redford Public Schools, Redford, Michigan

Laurie Sleep

University of Michigan, Ann Arbor, Michigan

Deborah Loewenberg Ball

University of Michigan, Ann Arbor, Michigan

Yaa Cole

University of Michigan, Ann Arbor, Michigan

Grand Ballroom H, Capacity: 100

10. Visions for Equity and Social Justice in Elementary School Mathematics

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

This symposium will feature three educators' studies that focus on integrating issues of equity and social justice into elementary school mathematics education courses and professional development. The findings highlight activities and course design that support preservice and in-service teachers as they broaden their conceptions of teaching mathematics to diverse students.

Anita A. Wager

University of Wisconsin—Madison, Madison, Wisconsin

Courtney Koestler

University of Wisconsin—Madison, Madison, Wisconsin

Ryan Flessner

University of Wisconsin—Madison, Madison, Wisconsin

Julia Aguirre

University of Washington, Tacoma, Washington

Grand Ballroom I, Capacity: 120



8:30 a.m.–10:00 a.m. (continued)

11. Inducting New Researchers: Mentoring Session

WORK SESSION (90-MINUTE SESSION)

Graduate students and new faculty members, please come share your research and career plans with those veterans of the field listed below. They will help you to think about your plans and provide you with some suggestions for your next steps.

M. Kathleen Heid

Pennsylvania State University, University Park, Pennsylvania

Margaret Smith

Board of Directors, National Council of Teachers of Mathematics; University of Pittsburgh, Pittsburgh, Pennsylvania

Patricia S. Wilson

University of Georgia, Athens, Georgia

Dorothy Y. White

University of Georgia, Athens, Georgia

Marilyn Elaine Strutchens

Auburn University, Auburn, Alabama

Janine Remillard

University of Pennsylvania, Philadelphia, Pennsylvania

Marjorie M. Petit

Vermont Mathematics Partnership, Montpelier, Vermont

Edward Silver

University of Michigan, Ann Arbor, Michigan

Arthur Baroody

University of Illinois at Urbana—Champaign, Champaign, Illinois

Marilyn Paula Carlson

Arizona State University, Tempe, Arizona

Martin Simon

New York University, New York, New York

J. Michael Shaughnessy

Portland State University, Portland, Oregon

Magdalene Lampert

University of Michigan, Ann Arbor, Michigan

Arthur B. Powell

Rutgers University, Newark, New Jersey

Hyman Bass

University of Michigan, Ann Arbor, Michigan

Karen D. King

New York University, New York, New York

Paola Sztajn

National Science Foundation, Arlington, Virginia

Glenda Lappan

Past President, National Council of Teachers of Mathematics; Michigan State University, East Lansing, Michigan

Clifford Konold

University of Massachusetts Amherst, Amherst, Massachusetts

Grand Ballroom J, Capacity: 100

9:15 a.m.–9:45 a.m.

12. What Can We Learn from U.S. and Chinese Classroom Instruction in Algebra?

INDIVIDUAL PAPERS (30-MINUTE SESSION)

A fine-grained analysis of ten Chinese and ten U.S. consecutive lessons on linear equations found that the Chinese students are more aware of the intended teaching goal than the U.S. students. Remarkable differences between these two classrooms exist in the ways they facilitate students' understanding.

Rongjin Huang

rjhuang@graduate.hku.hk

Texas A&M University, College Station, Texas

Yeping Li

Texas A&M University, College Station, Texas

Grand Ballroom A, Capacity: 120

9:15 a.m.–9:45 a.m. (continued)

13. Alternatively Certified Teachers in Urban Education: Case Studies from New York City

INDIVIDUAL PAPERS (30-MINUTE SESSION)

This study will report on a set of parallel case studies of teachers training under the auspices of the New York City Teaching Fellows (NYCTF) alternative certification program. We will outline three particular aspects of the NYCTF experience, each of which exemplifies the overall nature of the program and its teachers.

Michael Meagher

mmeagher@brooklyn.cuny.edu

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

Laura M. Gellert

City University of New York–Graduate Center, New York, New York

Lidia Gonzalez

City University of New York, New York, New York

Shana Henry

City University of New York–Graduate Center, New York, New York

Grand Ballroom B, Capacity: 120

10:00 a.m.–10:30 a.m.

14. Teachers' Evolving Beliefs: From Certainty to Uncertainty

INDIVIDUAL PAPERS (30-MINUTE SESSION)

As one matures, epistemic beliefs evolve from the acceptance of knowledge as certain to an integration of expert knowledge with personal experiences. This session describes changes in teachers' beliefs and practices as they participated in online professional development in the form of integrated mathematics content and pedagogy courses.

JoAnn Cady

University of Tennessee, Knoxville, Tennessee

Thomas E. Hodges

University of Tennessee, Knoxville, Tennessee

Grand Ballroom A, Capacity: 120

15. Teachers' Beliefs of SES and Their Effects on Students' Mathematics Achievement

INDIVIDUAL PAPERS (30-MINUTE SESSION)

Our study investigates how teachers' beliefs about the socioeconomic status (SES) of their students relate to their mathematical instructional practices and how these practices affect students' achievement. Results demonstrated a moderate relationship between teachers' beliefs and students' achievement, implying that education interventions should focus on changing teachers' beliefs.

Alejandra Salinas

AleSalinas9@aol.com

University of Miami, Miami, Florida

Gabriel Quintana

University of Miami, Miami, Florida

Karen Adamson

University of Miami, Miami, Florida

Grand Ballroom B, Capacity: 120

10:30 a.m.–12:00 noon

16. Defining and Assessing Teachers' Mathematical and Pedagogical Knowledge

WORK SESSION (90-MINUTE SESSION)

This session will describe assessments that measure the mathematical and pedagogical content knowledge of grades 4–8 teachers in a study investigating the potential relationship between teachers' knowledge and students' achievement. The presenters will engage participants in examining frameworks and items and in discussing the use of these two types of assessments.

Anna Graeber

annagrae@umd.edu

University of Maryland, College Park, Maryland

Patricia F. Campbell

University of Maryland, College Park, Maryland

Toni Michelle Smith

University of Maryland, College Park, Maryland

Amber H. Rust

University of Maryland, College Park, Maryland

Darcy L. Conant

University of Missouri—Columbia, Columbia, Missouri

Jill DePiper

University of Maryland, College Park, Maryland

Grand Ballroom C, Capacity: 100

17. Experiences of African Americans in Mathematics Classrooms

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

This symposium highlights current research on the experiences of African American students in mathematics education. Although different conceptual frameworks and research methodologies guided each of the studies, all the studies seek to understand the experiences of African American students in mathematics education from middle school to postsecondary institutions.

Roni Ellington

Morgan State University, Baltimore, Maryland

Grand Ballroom I, Capacity: 100

18. Transformation from Student to Teacher: A Challenge for Preservice Education

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

To become teachers who can learn from practice and improve over time, preservice teachers must shift their focus from teacher to students, from their own cultural background to the diverse backgrounds of their students, and from conventional mathematics to mathematics-for-teaching. New findings will reveal insights into this process.

James Hiebert

University of Delaware, Newark, Delaware

Anne Morris

University of Delaware, Newark, Delaware

Sandy M. Spitzer

University of Delaware, Newark, Delaware

Amanda Jansen

University of Delaware, Newark, Delaware

Delayne Johnson

University of Delaware, Newark, Delaware

Tonya Bartell

University of Delaware, Newark, Delaware

Discussant: Magdalene Lampert

University of Michigan, Ann Arbor, Michigan

Discussant: Ruth Heaton

University of Nebraska—Lincoln, Lincoln, Nebraska

Grand Ballroom E, Capacity: 120

19. Measuring Implementation Fidelity of Secondary School Mathematics Textbooks

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

We will report the implementation fidelity of two program types, integrated and subject-specific, in grade 9 classrooms. We will discuss how classroom-visit protocols were developed from examinations of curricular materials and interviews with textbook authors. We will share online instruments used to document curriculum implementation.

James E. Tarr

Tarrj@missouri.edu

University of Missouri—Columbia, Columbia, Missouri

Douglas A. Grouws

University of Missouri—Columbia, Columbia, Missouri

Melissa McNaught

University of Missouri—Columbia, Columbia, Missouri

Angela Sutter

University of Missouri—Columbia, Columbia, Missouri

Grand Ballroom F, Capacity: 120

20. Contrasting Perspectives on Connecting Important Ideas in Probability

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

We will present three contrasting views on how to develop the link between theoretical and empirical probabilities in middle school students. Building from this specific example, we will explore the benefits of three different software tools for developing important ideas in probability and linking them to more general statistical reasoning.

Hollylynn Lee

Hollylynn@ncsu.edu

North Carolina State University, Raleigh, North Carolina

Andee Rubin

TERC, Cambridge, Massachusetts

Clifford Konold

University of Massachusetts Amherst, Amherst, Massachusetts

Dor Abrahamson

University of California Berkeley, Berkeley, California

J. Todd Lee

North Carolina State University, Raleigh, North Carolina

Sibel Kazak

University of Massachusetts Amherst, Amherst, Massachusetts

Discussant: Philip James Vahey

SRI International, San Francisco, California

Grand Ballroom G, Capacity: 120

10:30 a.m.–12:00 noon (continued)

21. Getting Published: Conversations with JRME Panel Members

WORK SESSION (90-MINUTE SESSION)

The JRME Editor and Editorial Panel members will facilitate large- and small-group discussions to answer participants' questions about publishing their work. Topics to be discussed include (1) the types of manuscripts JRME accepts, (2) the manuscript review process, and (3) pitfalls common to rejected manuscripts. Bring ideas and questions!

Beatriz D'Ambrosio

*Board of Directors, National Council of Teachers of Mathematics;
Miami University of Ohio, Oxford, Ohio*

Edward Esty

SRI International, Chevy Chase, Maryland

M. Kathleen Heid

Pennsylvania State University, University Park, Pennsylvania

Heather Hill

Harvard University, Cambridge, Massachusetts

Signe Kastberg

Indiana University Purdue University Indianapolis, Indianapolis, Indiana

Peter Kloosterman

Indiana University Bloomington, Bloomington, Indiana

Denise S. Mewborn

University of Georgia, Athens, Georgia

Joan Moss

Ontario Institute for Studies in Education, University of Toronto, Toronto, Ontario

Jeffrey Shih

University of Nevada, Las Vegas, Las Vegas, Nevada

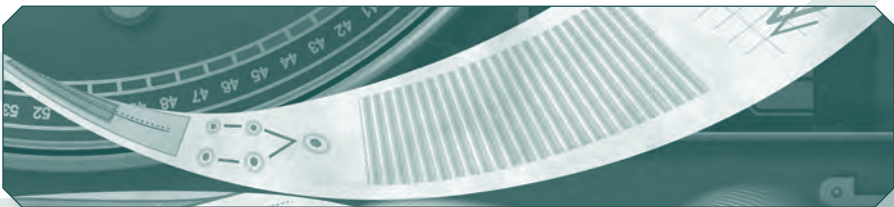
Paola Sztajn

National Science Foundation, Arlington, Virginia

Gwendolyn M. Lloyd

Virginia Polytechnic Institute and State University, Blacksburg, Virginia

Grand Ballroom H, Capacity: 100



22. Publishing Your Research in Teacher-Friendly Articles

WORK SESSION (90-MINUTE SESSION)

The editorial panels of *Teaching Children Mathematics*, *Mathematics Teaching in the Middle School*, *Mathematics Teacher*, and *ON-Math* will present tips and techniques for writing about research for a teacher audience, followed by a question-and-answer period. Participants are encouraged to bring specific ideas for discussion individually or in small groups.

Grand Ballroom J, Capacity: 100

10:45 a.m.–11:15 a.m.

23. Assessing What Counts: Opportunities and Outcomes in Elementary School Math

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

This study uses a longitudinal, mixed-methods design to examine how teacher education prepares preservice teachers to teach reform-oriented mathematics, how the school context hinders or helps first-year teachers to enact reformed practices, and how their practices shape students' learning opportunities.

Cindy Jong

jongc@bc.edu

Boston College, Boston, Massachusetts

Grand Ballroom A, Capacity: 120

24. An Analysis of the Alignment between the Written and Intended Curricula

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

This session will give an overview of a research study that examined the alignment between state grade-level learning expectations (GLEs) from ten populous states and four popular mathematics textbook series regarding the topic of fraction concepts and computation. The methodology, results, and implications of the study will be discussed.

Shannon Wayne Dingman

sdingman@uark.edu

University of Arkansas, Fayetteville, Arkansas

Grand Ballroom B, Capacity: 120

25. Supports for Urban Math Teachers and Equity for Urban Math Students

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

This paper discusses the supports for New York City Teaching Fellows, both (a) to develop the deep understanding of mathematics that they need in order to teach mathematics conceptually, and (b) to support them in understanding and reaching students who are different from them in their background and cultural experiences.

Mary Q. Foote

mary.foote@gc.cuny.edu

City University of New York–Queens College, New York, New York

Laurel Cooley

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

Grand Ballroom A, Capacity: 120

26. Exploring Parents' Experiences with Standards-Based Curricula

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

Mathematics curricula designed to focus on conceptual understanding engage students in activities that are different from those their parents experienced. In this presentation we report on a study in which we explored how parents make sense of reformed curricula and how previous experiences with mathematics affect parents' sense-making processes.

Joanna Rachel Bartlo

Portland State University, Portland, Oregon

Ann Sitomer

Portland Community College, Portland, Oregon

Grand Ballroom B, Capacity: 120

12:15 p.m.–12:45 p.m.

27. The Spatial Reasoning and Visualization of Secondary School Mathematics Teachers

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

This study reports on the spatial reasoning and visualization of secondary school mathematics teachers using interview and observation data focusing on how they externally represent and work with important geometric concepts and relations typically examined only in 2-D when presented the same concepts and relations in a 3-D environment.

Deborah Moore-Russo

dam29@buffalo.edu

University at Buffalo, State University of New York, Buffalo, New York

Grand Ballroom A, Capacity: 120

28. The Demands of State Contexts on Mathematics Materials Selection

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

The pressures of No Child Left Behind, state testing, and meeting state standards place great demands on textbook adoption processes. We will illustrate how state contexts affect school districts' selection of mathematics instructional materials, and we will draw attention to similarities and differences in adoption and open-territory states.

Julie Koehler Zeringu

Education Development Center, Newton, Massachusetts

Katherine Schwinden

Education Development Center, Newton, Massachusetts

Grand Ballroom B, Capacity: 120



29. Building Teacher Leadership in Mathematics: A District Case Study

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

This study explores factors that facilitate or hinder the development of teacher-leaders in mathematics and their ability to scale up the work of mathematics reform at the district level, following three years of a three-week residential summer institute that combines rigorous mathematics content coursework with leadership development.

Karen Marie Higgins

higginsk@oregonstate.edu

Oregon State University, Corvallis, Oregon

Nicole Rigelman

n.rigelman@worldnet.att.net

George Fox University, Newberg, Oregon

Grand Ballroom A, Capacity: 120

30. Mathematics and Gender: A Study of Parents and Children Playing a Board Game

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

This exploratory study of twenty-eight parent-child dyads playing a board game shows that these parents provide many more opportunities for their sons to do mathematics actively than for their daughters, although they scaffold mathematics to approximately the same degree for both daughters and sons. They also enact executive autonomy more often over their daughters.

Ann Anderson

ann.anderson@ubc.ca

University of British Columbia, Vancouver, British Columbia

Jim Anderson

University of British Columbia, Vancouver, British Columbia

Lyndsay Moffat

University of British Columbia, Vancouver, British Columbia

Jon Shapiro

University of British Columbia, Vancouver, British Columbia

Grand Ballroom B, Capacity: 120

1:00 p.m.–2:30 p.m.

31. Designing and Using Problems to Teach Mathematical Knowledge for Teaching

WORK SESSION (90-MINUTE SESSION)

What kinds of tasks develop mathematical knowledge for teaching (MKT)? How are these tasks different from “regular” mathematics activities? In this session, participants explore these types of questions through the analysis of materials that have been designed to develop MKT and discuss a preliminary framework created by the presenters.

Deborah Loewenberg Ball

University of Michigan, Ann Arbor, Michigan

Kara Suzuka

University of Michigan, Ann Arbor, Michigan

Laurie Sleep

University of Michigan, Ann Arbor, Michigan

Hyman Bass

University of Michigan, Ann Arbor, Michigan

Jennifer Lewis

University of Michigan, Ann Arbor, Michigan

Mark Thames

University of Michigan, Ann Arbor, Michigan

Grand Ballroom C, Capacity: 100

32. Surfacing the Explicit: Abductive Strategies in Pattern Generalization

WORK SESSION (90-MINUTE SESSION)

This session addresses issues relevant to sixth graders’ ability to generalize algebraic patterns. We explore factors that assist or deter students in constructing and justifying algebraic generalizations. We explore activities that assist students in obtaining algebraically useful generalizations, including instruction that facilitates the appropriation and internalization of effective abductive strategies.

Joanne Rossi Becker

becker@math.sjsu.edu

San Jose State University, San Jose, California

Ferdinand Rivera

San Jose State University, San Jose, California

Grand Ballroom D, Capacity: 100

33. Affecting Teachers' Images of What and Who They Teach

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

We address two interrelated themes: (1) Difficulties American teachers face in teaching high-quality, conceptually coherent mathematics, and (2) reconceptualizing goals and methods of mathematics teachers' professional development as we gain greater insight into those difficulties while conducting design experiments aimed at that transformation.

Patrick Wilfred Thompson

pat.thompson@asu.edu

Arizona State University, Tempe, Arizona

Christina Miller

Arizona State University, Tempe, Arizona

Ana Lage Ramirez

Arizona State University, Tempe, Arizona

Carlos Castillo-Garsow

Arizona State University, Tempe, Arizona

Sharon Lima

Arizona State University, Tempe, Arizona

Grand Ballroom E, Capacity: 120

34. Understanding Statistical Variability: Present and Future

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

This symposium will examine the cutting edge of knowledge on understanding statistical variability and consider an agenda for research over the next decade. A specific focus will be understandings of variability that can provide conceptual support for understanding the role of variability in making inferences from a sample to a population.

Luis Saldanha

Portland State University, Portland, Oregon

J. Michael Shaughnessy

Portland State University, Portland, Oregon

Andee Rubin

TERC, Cambridge, Massachusetts

Robert delMas

University of Minnesota, Minneapolis, Minnesota

Discussant: Martin Simon

New York University, New York, New York

Grand Ballroom F, Capacity: 120

35. Research Preparation for Doctorates in Mathematics Education

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

This session will examine how different institutions in the United States prepare their doctoral students in mathematics education for research. Attention to, and different components in, the research preparation will be discussed, including core coursework, research internships, dissertations, and alternatives to dissertations.

Robert Reys

University of Missouri—Columbia, Columbia, Missouri

James Middleton

Arizona State University, Tempe, Arizona

Barbara Dougherty

University of Mississippi, University, Mississippi

Grand Ballroom G, Capacity: 120

36. Mathematics Specialists and Coaches: Research and Issues from the Field

WORK SESSION (90-MINUTE SESSION)

In this session we will present an overview of research on coaching, identifying issues and challenges. Researchers from three projects using mathematics specialists or coaches will describe how they dealt with the challenges in their projects. Participants will be involved in small-group discussions focused on the challenges.

Maggie B. McGatha

maggie.mcgatha@louisville.edu

University of Louisville, Louisville, Kentucky

Robert Q. Berry III

University of Virginia, Charlottesville, Virginia

Douglas H. Clements

University at Buffalo, State University of New York, Buffalo, New York

Nan Dempsey

Upstate Regional Mathematics and Science Center, Duncan, South Carolina

Julie Sarama

University at Buffalo, State University of New York, Buffalo, New York

Grand Ballroom H, Capacity: 100



37. Mathematics Education Research and Development in NSF-DRL

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

In this presentation, we will discuss four NSF division programs that offer a set of complementary approaches for advancing research, development, and field-based improvement strategies: Discovery Research K–12, Research and Evaluation on Education in Science and Engineering, Informal Science Education, and Information Technology Experiences for Students and Teachers.

Paola Sztajn

psztajn@nsf.gov

National Science Foundation, Arlington, Virginia

Karen Marrongelle

National Science Foundation, Arlington, Virginia

Grand Ballroom I, Capacity: 120

38. Issues in Case-Study Research on Teaching in Urban Algebra Classrooms

WORK SESSION (90-MINUTE SESSION)

In this work session, participants will engage in data from case-study research of high school algebra teachers in one urban school district in order to explore what constitutes effective teaching practice and teachers' knowledge for effective teaching in the context of state and district accountability pressures.

Ann Edwards

University of Maryland, College Park, Maryland

Daniel Chazan

University of Maryland, College Park, Maryland

Lawrence Clark

University of Maryland, College Park, Maryland

Whitney Johnson

University of Maryland, College Park, Maryland

Steven Jones

University of Maryland, College Park, Maryland

Carolina Napp

University of Maryland, College Park, Maryland

Farhaana Nyamekye

University of Maryland, College Park, Maryland

Grand Ballroom J, Capacity: 100

39. Effects of a Research and Professional Development Model on Teachers' Learning

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

This study is part of a larger research program examining the trajectory of students' emergent algebraic understanding and the development of related curriculum materials. Fourteen teachers participated in a research and professional development program designed to bridge research and classroom practice. Teachers' outcomes were increased content and pedagogical content knowledge in early algebra.

Catherine Diane Bruce

cathybruce@trentu.ca

Trent University, Peterborough, Ontario

Ruth Anne Beatty

University of Toronto, Toronto, Ontario

Pat Millot

District School Board of Niagara, Saint Catharines, Ontario

Sue Wilson

District School Board of Niagara, Saint Catharines, Ontario

Glynnis Flemming

District School Board of Niagara, Saint Catharines, Ontario

Sean Hanna

District School Board of Niagara, Saint Catharines, Ontario

Grand Ballroom A, Capacity: 120

40. High School Teachers' Evolving Understanding of Comparing Distributions

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

Results will be presented of a design experiment involving the development and implementation of innovative statistical professional development to support high school mathematics teachers' developing understanding of comparing distributions.

Sandra R. Madden

sandra.madden@wmich.edu

Western Michigan University, Kalamazoo, Michigan

Grand Ballroom B, Capacity: 120

2:30 p.m.–3:00 p.m.

41. Beginning Teachers' and Students' Mathematical Errors

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

This presentation will report on findings about what influences students' mathematical errors over two years of teaching and how beginning teachers view and respond to the errors.

Hanna N. Haydar

Haydar@brooklyn.cuny.edu

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

Nieves Angulo

City University of New York–Hostos Community College, Bronx, New York

Sunita Vatuk

MetroMath, City University of New York Graduate Center, New York, New York

Grand Ballroom A, Capacity: 120

42. Toward a Theory of Young Children's Understanding of Spatial Decomposition

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

Insights will be presented from a study of kindergartners' understandings of spatial decomposition. Results showed surprising fluidity between holistic and analytic thinking. Children showed evidence of understanding several principles of splitting spatial wholes into parts. The nature of these understandings and implications for teaching fractions and division will be explored.

Mary Elaine Spitler

mspitler@buffalo.edu

University at Buffalo, State University of New York, Buffalo, New York

Grand Ballroom B, Capacity: 120

3:00 p.m.–4:30 p.m.

43. The Final Chapter of the CSMC K–8 State Standards Analyses: Statistics

WORK SESSION (90-MINUTE SESSION)

This session will summarize the latest state standards analysis conducted by the Center for the Study of Mathematics Curriculum (CSMC), which highlights what students are expected to know and be able to do in statistics. Reflections from this and previous analyses of the state standards will be shared.

Jill Annette Newton

newtonji@msu.edu

Michigan State University, East Lansing, Michigan

Aladar Horvath

Michigan State University, East Lansing, Michigan

Leslie Dietiker

Michigan State University, East Lansing, Michigan

James E. Tarr

University of Missouri—Columbia, Columbia, Missouri

Glenda Lappan

Past President, National Council of Teachers of Mathematics; Michigan State University, East Lansing, Michigan

Grand Ballroom D, Capacity: 100

44. Meaningful Mathematical Discourse in Mathematics Learning Communities

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

This session will present the results of a study that investigated the mathematical discourse of professional learning communities (PLCs) of secondary school mathematics teachers. Videos will be discussed that illustrate differences in the PLC facilitators' mathematical knowledge and ability to decenter when interacting with other PLC members.

Marilyn Paula Carlson

marilyn.carlson@asu.edu

Arizona State University, Tempe, Arizona

Kevin Charles Moore

Arizona State University, Tempe, Arizona

Stacey Andrew Bowling

Arizona State University, Tempe, Arizona

Discussant: Dick Lesh

Indiana University, Bloomington, Indiana

Discussant: Chris Rasmussen

San Diego State University, San Diego, California

Discussant: Patrick Wilfred Thompson

Arizona State University, Tempe, Arizona

Grand Ballroom E, Capacity: 120

3:00 p.m.–4:30 p.m. (continued)

45. Restructuring Field Experiences to Focus on Students' Mathematical Thinking

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

This symposium highlights three research projects, at different stages of research development, that have endeavored to alter the structure of field experiences in order to sharpen the focus of such experiences on students' mathematical thinking.

Keith Rigby Leatham

kleatham@mathed.byu.edu

Brigham Young University, Provo, Utah

Anderson Hassell Norton III

Virginia Polytechnic Institute and State University, Blacksburg, Virginia

Patricia S. Wilson

pswilson@uga.edu

University of Georgia, Athens, Georgia

Blake E. Peterson

Brigham Young University, Provo, Utah

Enrique Galindo

Indiana University Bloomington, Bloomington, Indiana

Grand Ballroom F, Capacity: 120

46. Keeping a Social-Justice Focus in a Grades K–6 Mathematics Coaching Program

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

This session will give the K–6 Mathematics Coaching Program's background and findings from research on a social-justice agenda in the program. The speakers will share evidence on the relationship between social justice and coach-teacher interactions, students' disposition, and teachers', coaches', and program personnel's growth. Discussion and feedback are expected.

Diana Erchick

Ohio State University at Newark, Newark, Ohio

Patti Brosnan

Ohio State University, Columbus, Ohio

Cynthia Tyson

Ohio State University, Columbus, Ohio

Melva Grant

Ohio State University, Columbus, Ohio

Donna Farland

Ohio State University at Mansfield, Mansfield, Ohio

Lisa Lanette Poling

Ohio State University, Columbus, Ohio

Grand Ballroom G, Capacity: 120

47. Mathematics Capstone Courses for Preservice Mathematics Teachers

WORK SESSION (90-MINUTE SESSION)

This presentation uses perspectives on teachers' planning to illuminate issues about the nature and purposes of mathematics capstone courses for prospective secondary school mathematics teachers. We will highlight distinctions among pedagogical content knowledge, mathematical knowledge for teaching, and secondary school mathematics from an advanced standpoint.

Karen D. King

New York University, New York, New York

Natasha Speer

Michigan State University, East Lansing, Michigan

Brenan Bardige

New York University, New York, New York

Heather Howell

New York University, New York, New York

John Tapper

New York University, New York, New York

Grand Ballroom H, Capacity: 100



3:00 p.m.–4:30 p.m. (continued)

48. Managing Mathematics Instruction: Policy, School Management, and Teaching

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

I explore how relations among policy, school management, and classroom teaching differ depending on the school subject. Focusing on both the designed and the lived organization, the presentation examines arrangements for managing mathematics instruction in elementary and middle schools with particular attention to how organizational routines structure school practice.

James P. Spillane

j-spillane@northwestern.edu

Northwestern University, Evanston, Illinois

Discussant: Magdalene Lampert

University of Michigan, Ann Arbor, Michigan

Grand Ballroom I, Capacity: 120

49. Synthesizing Research on Rational-Number Reasoning

WORK SESSION (90-MINUTE SESSION)

We will describe the conduct of the synthesis of rational-number reasoning and its database ($n > 500$). Groups will discuss multiplication and division; area and volume; fractions, ratios and rates; decimals and percents; and scaling and similarity, along with associated learning trajectories. Groups will report back, and the discussant will summarize.

Jere Confrey

jconfrey@gmail.com

North Carolina State University, Raleigh, North Carolina

Alan Maloney

North Carolina State University, Raleigh, North Carolina

Kenny Nguyen

North Carolina State University, Raleigh, North Carolina

Holt Wilson

North Carolina State University, Raleigh, North Carolina

Discussant: Martin Simon

New York University, New York, New York

Grand Ballroom J, Capacity: 100

3:15 p.m.–3:45 p.m.

50. Preservice Teachers' Conceptions of Fair Cylindrical Dice

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

Prospective teachers hypothesized about the dimensions of a cylinder that, when tossed, had an equal likelihood of landing on the lateral surface or either base. Their conceptions before and after an experiment of tossing different sizes of cylinders, as well as the effect of the experiment on their thinking, will be discussed.

Dustin L. Jones

DLJones@shsu.edu

Sam Houston State University, Huntsville, Texas

Grand Ballroom A, Capacity: 120

51. What Goes into “Installing” a Theorem: A Study of Practical Rationality

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

What work must teachers do to consider a theorem “installed,” to be able to hold their class responsible for knowing and using a proposition as true? We will investigate the perspective of experienced geometry teachers on that question by examining their reactions to animated stories of teaching.

Patricio Herbst

University of Michigan, Ann Arbor, Michigan

Takeshi Miyakawa

University of Michigan, Ann Arbor, Michigan

Talli Nachlieli

Levinsky College of Education, Israel, Tel Aviv, Israel

Grand Ballroom B, Capacity: 120

4:00–4:30 p.m.

52. Out-of-School Mathematics Practices in Urban Youth Development Programs

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

This session will present findings from a study of the mathematics practices used by urban youth in out-of-school youth development programs. We will describe how young people combine previous learning from home, school, and community to produce hybrid mathematical practices during the course of informal activity and the role that setting structure plays.

Janine Remillard

janiner@gse.upenn.edu

University of Pennsylvania, Philadelphia, Pennsylvania

John Baker

University of Pennsylvania, Philadelphia, Pennsylvania

Lynda Ginsburg

Rutgers University, Newark, New Jersey

Grand Ballroom A, Capacity: 120

53. Preservice Secondary School Teachers' Knowledge and Confidence with Content

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

This session will share results of a study that investigated preservice secondary school mathematics teachers' mathematics content knowledge and their confidence in teaching this content. The assessment instrument that comprised questions from a state's assessment anchors will be shared along with implications for university secondary mathematics education programs.

Jane Murphy Wilburne

jmw41@psu.edu

Penn State Harrisburg, Middletown, Pennsylvania

Mike Long

malong@ship.edu

Shippensburg University, Shippensburg, Pennsylvania

Grand Ballroom B, Capacity: 120

4:45 p.m.–6:15 p.m.

54. Child Vendors on the Trains in Mumbai, India: A Comparative Case Study

POSTER SESSION

This proposal highlights the mathematical strategies and problem-solving skills of children participating in the culturally based practice of vending on trains in Mumbai, India, and contrasts their strategy use with nonsellers. The case-study analysis suggests the strategies used by sellers are related to the practice of vending.

Yasmin A. Sitabkhan

ysitabkhan@berkeley.edu

University of California Berkeley, Berkeley, California

North Foyer (Table 1), Capacity: 800

55. Quality Conversations in the Classroom: Support That Teachers' Manuals Provide

POSTER SESSION

As teachers' primary resource, manuals should provide support for facilitating high-quality mathematics discussions. This study examined four manuals to determine the supports included. Results demonstrated wide variety in quantity and types of supports. Implications for districts include matching content in teachers' manuals and professional development to teachers' skills and knowledge levels.

Lori Williams

jimtown@sbcglobal.net

University of Wisconsin—Milwaukee, Milwaukee, Wisconsin

North Foyer (Table 2), Capacity: 800

56. Research Connections between Secondary School and College Mathematics Achievement

POSTER SESSION

This study examines the influence of Standards-based and conventional secondary school mathematics curricula on students' postsecondary placement exams, first college mathematics course taking, and first college mathematics grade point average, when other factors like gender, ethnicity, socioeconomic status, opportunity to learn, and high school mathematics grade point average are considered.

Jon Davis

Western Michigan University, Kalamazoo, Michigan

Jeffrey Shih

University of Nevada, Las Vegas, Las Vegas, Nevada

North Foyer (Table 3), Capacity: 800

57. Secondary School Mathematics Teachers' Understanding of Functional Representations

POSTER SESSION

Research in the domain of functions and functional representations supports the notion that demonstrating understanding in this domain means both making connections across representations and using different perspectives regarding the functions themselves. To what extent do in-service secondary school mathematics teachers have the ability to demonstrate this type of understanding?

LuAnn Malik

luann.malik@aiu3.net

Southwest Pennsylvania Math Science Partnership, Homestead, Pennsylvania

North Foyer (Table 4), Capacity: 800

58. Standards-Based Instruction through Professional Development Partnerships

POSTER SESSION

Participants will learn about the preliminary results of a mathematics and science partnership designed to support teachers in changing toward standards-based instruction in grades K–5 classrooms. Research also investigates the construct of “teacher lust” as an influence for, or barrier to, change.

William S. Walker III

wswalker@purdue.edu

Purdue University, West Lafayette, Indiana

Andrew M. Tyminski

Purdue University, West Lafayette, Indiana

Jerry A. Woodward

Purdue University, West Lafayette, Indiana

North Foyer (Table 5), Capacity: 800

59. Students' Understanding of Magnitude on the Number Line: The Use of Vectors

POSTER SESSION

Magnitude is central to understanding generative principles of the number line, yet it often remains implicit. The goal of this session is to consider an intervention that makes explicit magnitude and interval size: the use of vectors. Results of an interview study with grade 5 students are presented and analyzed.

Darrell Earnest

dearnest@berkeley.edu

University of California Berkeley, Berkeley, California

North Foyer (Table 6), Capacity: 800

60. Students Create Instructional Adaptations for Learning Division

POSTER SESSION

Fourth-grade students with learning disabilities cooperatively explored multiplication and division and communicated their mathematical ideas with other members of the class. We will give examples of how students adapted the group learning activities to their individual interests and knowledge. We will also describe resulting changes in individual students' mathematical knowledge.

Susan B. Taber

taber@rowan.edu

Rowan University, Glassboro, New Jersey

Michele Canonica

Monroe Township School District, Williamstown, New Jersey

North Foyer (Table 7), Capacity: 800

61. Teachers Engaged in Research: Details of Teachers' Curriculum Making

POSTER SESSION

Following from the 2007 NCTM research symposium “Teachers Engaged in Research,” elementary and middle school teachers in the southeastern United States are currently engaged in action research. This poster session will highlight the scope of research done by these teachers and highlight preliminary findings related to teachers' learning in mathematics.

Stephanie L. Behm

sbehm@vt.edu

Virginia Polytechnic Institute and State University, Blacksburg, Virginia

North Foyer (Table 8), Capacity: 800

62. The Cultural Context of Mathematics Instruction

POSTER SESSION

This presentation will look at the use of a culturally based mathematics curriculum, a model for evaluating implementing this approach, and its implications for professional development. Participants will have the opportunity to try out a geometry activity from the curriculum in order to experience mathematics grounded in cultural knowledge.

Melissa Kagle

mkagle@wested.org

Learning Innovations at WestEd, Boston, Massachusetts

North Foyer (Table 9), Capacity: 800

63. Effects of Learning Mathematics through Measurement and Algebra Contexts

POSTER SESSION

Preliminary data show a significant, positive correlation between introducing young children to mathematics through measurement and algebraic conceptions and their understanding of generalized arithmetic. We hypothesize that this is an indication of their readiness to study a formal Algebra 1 course immediately following their primary school experience.

Linda Venenciano

University of Hawaii, Curriculum Research and Development Group, Honolulu, Hawaii

Hannah Slovin

University of Hawaii, Curriculum Research and Development Group, Honolulu, Hawaii

North Foyer (Table 10), Capacity: 800

64. The Impact of Measurement Models in Developing Rational-Number Concepts

POSTER SESSION

This study investigated models students used to solve problems involving the comparison of rational-number quantities. One hundred ninety-one fifth-, sixth-, and seventh-grade students were given three rational-number problems, and their responses were analyzed to determine what diagrammatic representations were used to support students' reasoning for their answers.

Melfried Olson

melfried@hawaii.edu

University of Hawaii, Curriculum Research and Development Group, Honolulu, Hawaii

Hannah Slovin

University of Hawaii, Curriculum Research and Development Group, Honolulu, Hawaii

Fay Zenigami

University of Hawaii, Curriculum Research and Development Group, Honolulu, Hawaii

North Foyer (Table 12), Capacity: 800

65. Increasing Engagement and Learning in Undergraduate Mathematics Classrooms

POSTER SESSION

Higher degrees of engagement in learning activities are expected to result in increases in the quality of learning. The research reported here seeks to measure increases in engagement and learning in undergraduate mathematics courses as a function of the use of tablet personal computers and collaborative classroom software.

Andy Hurford

United States Air Force Academy, Colorado Springs, Colorado

North Foyer (Table 13), Capacity: 800

66. Math Interactive Learning Experience for Alcohol-Affected Children

POSTER SESSION

Deficits in mathematical functioning have been consistently reported among individuals prenatally affected by alcohol. A metacognitive mathematics program, Math Interactive Learning Experience, was developed to improve mathematical skills in young alcohol-affected children. Participants in the treatment group demonstrated greater short- and long-term gains than a comparison sample.

Elisabeth Taddeo

Marcus Institute, Atlanta, Georgia; Emory University, Atlanta, Georgia

Julie A. Kable

Marcus Institute, Atlanta, Georgia; Emory University School of Medicine, Atlanta, Georgia

Claire D. Coles

Marcus Institute, Atlanta, Georgia; Emory University, Atlanta, Georgia

North Foyer (Table 15), Capacity: 800

67. Networking High Schools to Support Mathematics Improvement

POSTER SESSION

In 2003, the COMPASS Center launched a national network of strong implementation in high schools. All use one of the five NSF-funded mathematics programs. We will present preliminary findings from our multiyear study of the COMPASS POINTS network.

Kasi Allen Fuller

Lewis and Clark College, Portland, Oregon

Eric Robinson

Ithaca College, Ithaca, New York

Margaret Robinson

Ithaca College, Ithaca, New York

North Foyer (Table 16), Capacity: 800

68. Preservice Teacher Content Knowledge: Realizing the Potential of Graphs

POSTER SESSION

This session will report on a study of preservice teachers' use of graphical representations in communicating aspects of data. Results indicate an overemphasis on technical aspects of graph construction, poor understanding of the functionality of graphs, and particular difficulties associated with box-and-whiskers plots.

Aisling Leavy

Mary Immaculate College—University of Limerick, Limerick, Ireland

Finbarr Sloane

Arizona State University, Tempe, Arizona

North Foyer (Table 17), Capacity: 800



Wednesday, April 9, 2008

8:30 a.m.–10:00 a.m.

69. PLENARY SESSION: Language(s) and Learning Mathematics

RESEARCH SYMPOSIUM

The speaker will address claims and questions about language(s) and learning mathematics, including what mathematical discourse practices are, what common language practices in mathematics classrooms exist among students who are bilingual or learning English, and what resources bilingual learners use to communicate mathematically.

Judit Moschkovich

jmoschko@ucsc.edu

University of California, Santa Cruz, Santa Cruz, California

Grand Ballroom A, Capacity: 120

10:30 a.m.–12:00 noon

70. Connecting Arithmetic and Algebra to Support a Range of Learners

WORK SESSION (90-MINUTE SESSION)

Participants will examine classroom situations in which a range of learners, including students who appear to be struggling and students who appear to need additional challenge in relation to their peers, are engaged in articulating, representing, and justifying general claims and applying this work to developing computational fluency.

Susan Jo Russell

Education Research Collaborative, TERC, Cambridge, Massachusetts

Deborah Schifter

Education Development Center, Newton, Massachusetts

Virginia Bastable

SummerMath for Teachers, Mount Holyoke College, South Hadley, Massachusetts

Grand Ballroom C, Capacity: 100

71. Practitioner-Centered Research: Practices Worthy of Attention

WORK SESSION (90-MINUTE SESSION)

Participants will discuss strategies for conducting mathematics education research that specifically focuses on practitioners' questions and needs, as illustrated through three major projects. Our goal is to open up a conversation about this type of research to learn about changes needed to sustain and further a practitioner-centered research agenda.

Pamela L. Paek

pamela.paek@mail.utexas.edu

Charles A. Dana Center, University of Texas at Austin, Austin, Texas

Philip Uri Treisman

Charles A. Dana Center, University of Texas at Austin, Austin, Texas

Grand Ballroom D, Capacity: 100

72. A Discussion of Conceptual and Procedural Knowledge in Mathematics

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

We will discuss, and engage the audience in discussing, issues surrounding the notions of conceptual and procedural knowledge in mathematics. How exactly should these types of knowledge be defined, how might they be connected, how are they acquired, and how are they used in fluent and powerful mathematical performance?

Michael Battista

Michigan State University, East Lansing, Michigan

Arthur Baroody

University of Illinois at Urbana-Champaign, Champaign, Illinois

Jon Star

Harvard University, Cambridge, Massachusetts

Discussant: Edward Silver

University of Michigan, Ann Arbor, Michigan

Grand Ballroom E, Capacity: 120

73. Homework: Window on Perceptions and Interactions

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

Mathematics homework is one activity that straddles school and home, engaging students, parents, and teachers. Analyses of interview data from the perspectives of school organization and culture, teachers and classrooms, and parents offer insights into how urban parents view themselves and are viewed by others in relation to mathematics.

Lynda Ginsburg

Rutgers University, Newark, New Jersey

Janine Remillard

University of Pennsylvania, Philadelphia, Pennsylvania

Enakshi Bose

University of Pennsylvania, Philadelphia, Pennsylvania

Traci English-Clarke

University of Pennsylvania, Philadelphia, Pennsylvania

Wendy Green

University of Pennsylvania, Philadelphia, Pennsylvania

Hanin Rashid

Rutgers University, Newark, New Jersey

Emily Schnee

Rutgers University, Newark, New Jersey

Discussant: Sukey Blanc

Research for Action, Philadelphia, Pennsylvania

Grand Ballroom F, Capacity: 120

74. Interactive Development of Mathematical Reasoning in a Virtual Space

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

Our symposium presents an emergent research area designed to understand the interactive development of mathematical reasoning of learners collaborating online to solve open-ended mathematics problems. The participants are urban and suburban American and Brazilian high school students and preservice teachers. Our studies contribute understanding about learning in virtual environments.

Arthur B. Powell

Rutgers University, Newark, New Jersey

Marcelo A. Bairral

Universidade Federal Rural do Rio de Janeiro, Seropédica, Rio de Janeiro, Brazil

F. Frank A. Lai

Rutgers University, New Brunswick, New Jersey

Kevin A. Merges

Rutgers Preparatory School, Somerset, New Jersey

Murat P. Cakir

Drexel University, Philadelphia, Pennsylvania

Grand Ballroom G, Capacity: 120

75. Elementary School Students' Discourse Practices

WORK SESSION (90-MINUTE SESSION)

We will trace students' learning by charting changes in fifth-grade students' mathematical discourse and argumentation across one school year, and we will present an analysis of the features of tasks that led to, or constrained, discourse.

Denise S. Mewborn

University of Georgia, Athens, Georgia

Hulya Kilic

University of Georgia, Athens, Georgia

Filyet Asli Ersoz

University of Georgia, Athens, Georgia

Dionne Indera Cross

Indiana University Bloomington, Bloomington, Indiana

Diana Kathleen May

University of Georgia, Athens, Georgia

Jisun Kim

University of Georgia, Athens, Georgia

Grand Ballroom H, Capacity: 100

10:30 a.m.–12:00 noon (continued)

76. Examining TEAM-Math’s Success: A Look into the Multifaceted Partnership

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

Constituency representatives of TEAM-Math, a National Science Foundation–funded mathematics and science partnership, will present their perspectives on the partnership’s success. Institutional partners include Auburn University, Tuskegee University, and fifteen school districts. A knowledge of teacher change and the development and sustainment of meaningful partnerships between schools and colleges can be gained.

Marilyn Elaine Strutchens

strutme@auburn.edu

Auburn University, Auburn, Alabama

W. Gary Martin

Auburn University, Auburn, Alabama

Stephen Stuckwisch

Auburn University, Auburn, Alabama

Mohammed Qazi

Tuskegee University, Tuskegee, Alabama

Tommy Bice

Alexander City Schools, Alexander City, Alabama

Lisa Lishak

Loachapoka High School, Loachapoka, Alabama

Grand Ballroom I, Capacity: 120

10:45 a.m.–11:15 a.m.

77. Professional Development for Teaching Math in K-5 Inclusion Classrooms

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

We will report quantitative and qualitative findings from the field-testing of the Math for All professional development program. This program uses a case-based approach to professional development and is designed to enhance elementary school teachers’ preparation to provide all students, including those with disabilities, with a standards-based education in mathematics.

Babette Moeller

bmoeller@edc.org

Education Development Center, New York, New York

Barbara Dubitsky

Bank Street College of Education, New York, New York

Grand Ballroom A, Capacity: 120

78. A Study of Laptop Use in Math Classrooms in a Low-Performing Middle School

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

This study explores the influences of a one-to-one laptop program on mathematics teaching and learning processes in a low-performing middle school. Findings suggest that the program can serve as a powerful instructional resource; specific contextual complexities, however, demand attention to numerous considerations prior to and during program implementation.

Lawrence Clark

lclark66@umd.edu

University of Maryland, College Park, Maryland

Grand Ballroom B, Capacity: 120

11:30 a.m.–12:00 noon

79. Increasing the Cognitive Demand of Mathematical Tasks

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

We provide evidence that it is possible for the cognitive demand of mathematical tasks not just to decline or be maintained but also to grow as students work on them. Using examples from a calculus class, we show how different ways of problematizing tasks can foster growth in cognitive demand.

Randi A. Engle

RAEngle@berkeley.edu

University of California Berkeley, Berkeley, California

Aditya P. Adiredja

University of California Berkeley, Berkeley, California

Grand Ballroom A, Capacity: 120

11:30 a.m.–12:00 noon (continued)

80. Principals as Instructional Leaders of Middle School Mathematics

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

This study characterizes how principals, acting as instructional leaders, make sense of policies and initiatives calling for instructional change in mathematics and motivate their staffs to work collaboratively to improve mathematics instruction. Semi-structured interview data are used to describe principals' involvement in mathematics instructional decisions in their schools.

Susan Regina Monaghan

Marquette University, Milwaukee, Wisconsin

John Moyer

Marquette University, Milwaukee, Wisconsin

Grand Ballroom B, Capacity: 120

12:15 p.m.–12:45 p.m.

81. A General Model for Mathematical Explanation

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

In this session, we use Toulmin's work in argumentation theory to investigate the general characteristics and structure of mathematical explanations. By adapting Toulmin's argumentation framework to mathematical explanations given by preservice secondary school mathematics teachers in an inquiry-based mathematics course, we will develop a general model for mathematical explanations.

Daniel Siebert

Brigham Young University, Provo, Utah

Jennifer Alder Brinkerhoff

Brigham Young University, Provo, Utah

Grand Ballroom A, Capacity: 120



82. Making the Invisible Visible: African American Students and Problem Solving

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

This presentation will share research findings about African American students' mathematical problem solving within middle school Geometry and Rational Number content strands. This presentation will discuss student reports of how they best learn mathematics, strengths and gaps in students' mathematical knowledge, and students' common errors and misconceptions.

Crystal Hill

chill2@email.unc.edu

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

Grand Ballroom B, Capacity: 120

1:00 p.m.–1:30 p.m.

83. Getting Unstuck: The Development of Collaborative Capacities over Time

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

I will discuss the development of students' collaboration skills over three years of data collection in secondary school mathematics classrooms. A central challenge of mathematical group work is learning how to get “unstuck.” I will argue that, over time, students' mathematical understanding influenced their collaboration skills and vice versa.

Indigo Esmonde

iesmonde@oise.utoronto.ca

Ontario Institute for Studies in Education, University of Toronto, Toronto, Ontario

Grand Ballroom A, Capacity: 120

84. The Mathematics Class as a Complex System

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

Using videotapes of middle school mathematics lessons, the speaker will demonstrate the compatibility of current research with the complex perspective, which interprets mathematics classes as potential holistic learning systems that regulate emergent behavior, specifically correlating research with five attributes of complexity: diversity, redundancy, interactions, decentralized control, and organized randomness.

Thomas E. Ricks

tomricks@lsu.edu

Louisiana State University, Baton Rouge, Louisiana

Grand Ballroom B, Capacity: 120

1:00 p.m.–2:30 p.m.

85. Discourse Matters: On the Complexity of Latinas' and Latinos' Learning of Mathematics

WORK SESSION (90-MINUTE SESSION)

This session intends to engage participants, through video episodes, in collaboratively investigating and discussing an exceptional teacher of mathematics of grade school Latinas and Latinos. The aims are to understand the instructional moves that support and advance students and to clarify the complex nature of integrating language and content.

Lena Licón Khisty

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University of Illinois at Chicago, Chicago, Illinois

Eugenia Vomvoridi Ivanovic

University of Illinois at Chicago, Chicago, Illinois

Aria Razfar

University of Illinois at Chicago, Chicago, Illinois

Gabriel Viego

University of Illinois at Chicago, Chicago, Illinois

Grand Ballroom C, Capacity: 100

86. Meeting the Needs of Students with Learning Disabilities

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

This session reviews recently conducted research on at-risk students and students with learning disabilities in standards-based classrooms in the intermediate and middle grades. The presenters will discuss the importance of curriculum modifications, instructional strategies and specific discourse practices that support higher achievement and students' increased participation.

John Woodward

woodward@ups.edu

University of Puget Sound, Tacoma, Washington

Juliet Baxter

University of Oregon, Eugene, Oregon

Asha Jitendra

University of Minnesota, Minneapolis, Minnesota

Grand Ballroom D, Capacity: 100

87. CAS as Teaching and Learning Facilitators

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

We share the results of four studies using computer algebra systems (CAS) in different settings, discussing the benefits and limitations of CAS in mathematics instruction. Our current research focuses on the impact of CAS tools on the beliefs and attitudes of preservice teachers in an upper-level methods course.

S. Asli Ozgun-Koca

Wayne State University, Detroit, Michigan

Michael Todd Edwards

Miami University, Oxford, Ohio

Michael Meagher

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

Grand Ballroom E, Capacity: 120

88. Learning about and from a Master Mathematics Teacher in China

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

This session will examine the practices of mathematics teacher ranking and promotion in China together with the case study of a master mathematics teacher. The case study highlights aspects of the teacher's expertise that are valued in China, which also help explain what is valued for and in Chinese classroom instruction.

Yeping Li

yepingli@tamu.edu

Texas A&M University, College Station, Texas

Rongjin Huang

Texas A&M University, College Station, Texas

Gerald Kulm

Texas A&M University, College Station, Texas

Discussant: Jinfa Cai

University of Delaware, Newark, Delaware

Discussant: Edward Silver

University of Michigan, Ann Arbor, Michigan

Grand Ballroom F, Capacity: 120

1:00 p.m.–2:30 p.m. (continued)

89. Fostering At-Risk First Graders' Computational Fluency

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

Three experiments evaluated whether computer-based, structured discovery learning could help at-risk first graders recognize arithmetic relations and use reasoning strategies to achieve computational fluency. The intervention produced significantly more mastery of $(n + 1)$ or $(1 + n)$ and $(8 + n)$ or $(n + 8)$ and $(9 + n)$ or $(n + 9)$ facts than control training did.

Arthur Baroody

University of Illinois at Urbana-Champaign, Champaign, Illinois

Bradley Thompson

University of Illinois at Urbana-Champaign, Champaign, Illinois

Michael D. Eiland

University of Illinois at Urbana-Champaign, Champaign, Illinois

Taka Namikawa

University of Illinois at Urbana-Champaign, Champaign, Illinois

Grand Ballroom G, Capacity: 120

90. Multiple Representations and Concrete Models

WORK SESSION (90-MINUTE SESSION)

In this session we will explore how multiple representations and concrete models are used and transformed by teachers in activities, in order to understand how they make meaningful connections among mathematical concepts, algebraic symbol manipulation, and concrete models.

Barbara Graves

bgraves@uottawa.ca

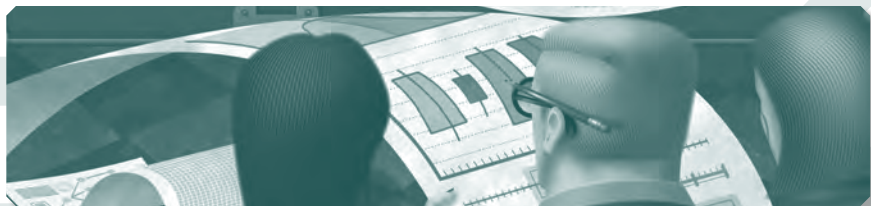
University of Ottawa, Ottawa, Ontario

Christine Suurtamm

Board of Directors, National Council of Teachers of Mathematics;

University of Ottawa, Ottawa, Ontario

Grand Ballroom H, Capacity: 100



91. Four Frames for Conceptualizing Links between Research and Practice

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

This panel explores four ways to link research and practice. Among those discussed is design research that examines how to create new approaches to instruction, in partnership with teachers, as the team tests and revises conjectures and researches translation that occurs as research from controlled settings is exported into practice.

Jere Confrey

jconfrey@gmail.com

North Carolina State University, Raleigh, North Carolina

Richard Lehrer

Vanderbilt University, Nashville, Tennessee

Michael Battista

Michigan State University, East Lansing, Michigan

Margaret Smith

Board of Directors, National Council of Teachers of Mathematics;

University of Pittsburgh, Pittsburgh, Pennsylvania

Timothy A. Boerst

University of Michigan, Ann Arbor, Michigan; South Redford Public Schools,

Redford, Michigan

Grand Ballroom I, Capacity: 120

92. Studying Mathematics Coaches: Findings and Challenges

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

Mathematics coaches are to provide on-site professional development addressing content, pedagogy, and curriculum. This session will present research examining coaches' practices and knowledge, the dilemmas they face, and their impact on students and teachers.

Patricia F. Campbell

patc@umd.edu

University of Maryland, College Park, Maryland

Brian Lord

Education Development Center, Newton, Massachusetts

Barbara Neufeld

Education Matters, Inc., Cambridge, Massachusetts

Linda Ruiz Davenport

Boston Public Schools, Boston, Massachusetts

Grand Ballroom J, Capacity: 100

1:45 p.m.–2:15 p.m.

93. “Speaking with Meaning” in Professional Learning Community Discourse

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

We will present results from investigating the mathematical discourse among members of a professional learning community (PLC) of secondary school mathematics teachers. The term “speaking with meaning,” its impact on PLC discourse, and its emergence as a sociomathematical norm will be discussed and illustrated.

Kevin Charles Moore

kmzipsgolf@gmail.com

Arizona State University, Tempe, Arizona

Kate Mullen

Arizona State University (CRESMET), Tempe, Arizona

Marilyn Paula Carlson

Arizona State University, Tempe, Arizona

Grand Ballroom A, Capacity: 120

94. Improving Understanding and Achievement through Argumentation and Writing

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

This session reports on a study that examined the effect of combining argumentation and writing on mathematical understanding and achievement of ninth-grade Algebra 1 students. Through the use of both quantitative and qualitative methods, the speaker examined how engagement in these activities increased mathematical understanding over time.

Dionne Indera Cross

dicross@indiana.edu

Indiana University Bloomington, Bloomington, Indiana

Grand Ballroom B, Capacity: 120

2:30 p.m.–3:00 p.m.

95. Knowing and Learning Exponential Functions: The Case of Ben

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

This report focuses on one secondary school mathematics teacher's development of conceptualizing multiplicative behavior in the context of real-world applications. Data collected through a teaching experiment provided evidence for how emphasizing exponentiation as a process can result in an increased ability to describe exponential behavior in robust and powerful ways.

April D. Strom

Arizona State University, Tempe, Arizona

Grand Ballroom A, Capacity: 120

96. Using Different Models to Make Sense of Fraction Multiplication

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

The Rational Number Project has received NSF funding to construct a curriculum module for fractions, decimals, and percents that will be a companion to the fraction lessons created with previous NSF support. This session will address the question of what models help students make sense of situations involving fraction multiplication.

Kathleen Cramer

crame013@umn.edu

University of Minnesota, Minneapolis, Minnesota

Terry Wyberg

University of Minnesota—Twin Cities, Minneapolis, Minnesota

Seth Leavitt

Minneapolis Public Schools, Minneapolis, Minnesota

Grand Ballroom B, Capacity: 120

3:00 p.m.–4:30 p.m.

97. Early Number: Integrating Research, Development, and Implementation

WORK SESSION (90-MINUTE SESSION)

Early number learning provides a crucial basis for school mathematics, yet large numbers of students do not master school mathematics satisfactorily. We will describe three interrelated endeavors focusing on intervention in early number learning, including research orientation, research outcomes, students' learning outcomes, and approaches to assessment, instruction, and teachers' development.

Robert John Wright

bob.wright@scu.edu.au

Southern Cross University, Lismore, New South Wales, Australia

Sara Eisenhardt

Northern Kentucky University, Highland Heights, Kentucky

David Ellemor-Collins

Southern Cross University, Lismore, New South Wales, Australia

Kurt Kinsey

Mountain States Mathematics, Sheridan, Wyoming

Lucinda (Petey) MacCart

Mountain States Mathematics, Sheridan, Wyoming

Pam Tabor

Roye-Williams Elementary School, Havre de Grace, Maryland

Grand Ballroom C, Capacity: 100

98. Using Design-Based Research to Develop Vermont's Ongoing Assessment Project

WORK SESSION (90-MINUTE SESSION)

The Vermont Mathematics Partnership's Ongoing Assessment Project (OGAP) is a cognitively based, formative assessment instructional intervention in mathematics that is being developed using design-based research. In this presentation, participants will review the development process and employ artifacts used to make development decisions.

Marjorie M. Petit

Vermont Mathematics Partnership, Montpelier, Vermont

Robert Laird

Vermont Mathematics Initiative, Burlington, Vermont

Discussant: Judith Zawojewski

Illinois Institute of Technology, Chicago, Illinois

Grand Ballroom D, Capacity: 100

99. Assessing Curricular Contributions to Poor Measurement Learning

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

Extensive prior research has shown our national weakness in learning measurement but failed to explain why the problem persists. This session hopes to refocus research attention on the problem and describe one project's efforts to assess how much written and enacted curricula contribute to it.

Jack Smith

jsmith@msu.edu

Michigan State University, East Lansing, Michigan

Gulcin Tan Sisman

Middle East Technical University, Ankara, Anatolia, Turkey

Hanna Figueras

Michigan State University, East Lansing, Michigan

KoSze Lee

Michigan State University, East Lansing, Michigan

Leslie Dietiker

Michigan State University, East Lansing, Michigan

Richard Lehrer

Vanderbilt University, Nashville, Tennessee

Grand Ballroom E, Capacity: 120

3:00 p.m.–4:30 p.m. (continued)

100. Scaling Up TRIAD: Teaching Math with Trajectories and Technologies

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

This symposium will present three rigorous studies of the NSF- and IES-supported TRIAD (Technology-enhanced, Research-based, Instruction, Assessment, and professional Development) model for scaling up successful educational interventions, from the perspectives of assessment (learning trajectories), professional development, and curriculum, and discusses the implications with participants.

Douglas H. Clements

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Julie Sarama

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University at Buffalo, State University of New York, Buffalo, New York

Janka Szilagyi

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University at Buffalo, State University of New York, Buffalo, New York

Mary Elaine Spitzer

University at Buffalo, State University of New York, Buffalo, New York

Grand Ballroom F, Capacity: 120

101. Using Mathematical Knowledge for Equitable Instruction

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

What do teachers need to be able to do to implement high-quality teaching in diverse classrooms? What do they need to know, and how do they need to use their knowledge? What does it take to prepare such teachers? This session will explore these questions from three perspectives.

Deborah Loewenberg Ball

University of Michigan, Ann Arbor, Michigan

Imani Masters Goffney

University of Michigan, Ann Arbor, Michigan

Carol E. Malloy

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

Dorothy Y. White

University of Georgia, Athens, Georgia

Grand Ballroom G, Capacity: 120

102. Knowledge-for-Teaching as Represented in a Lesson Plan

WORK SESSION (90-MINUTE SESSION)

A lesson plan—construed broadly—can be thought of as the meeting ground of the theoretical and practical. In this session we will explore different conceptualizations for what a mathematics lesson plan can be, with an eye on how mathematical knowledge-for-teaching is realized in a lesson plan.

Yuichi Handa

California State University, Chico, California

Daniel Chazan

University of Maryland, College Park, Maryland

Brent Davis

University of British Columbia, Vancouver, British Columbia

James Hiebert

University of Delaware, Newark, Delaware

David Kirshner

Louisiana State University, Baton Rouge, Louisiana

Deborah Schifter

Education Development Center, Newton, Massachusetts

Margaret Smith

Board of Directors, National Council of Teachers of Mathematics; University of Pittsburgh, Pittsburgh, Pennsylvania

Grand Ballroom H, Capacity: 100

3:00 p.m.–4:30 p.m. (continued)

103. Mathematics and Science Partnership Evaluation Issues and Challenges

RESEARCH SYMPOSIUM (90-MINUTE SESSION)

Participants will gain insights into data-gathering and data-analysis issues and challenges of multiple rural sites with limited resources from four viewpoints—a state education department mathematics and science partnership (MSP) program director, a state MSP project evaluator, an NSF-funded MSP project evaluator, and an NSF-funded research, evaluation, and technical assistance project director.

John Sutton

RMC Research Corporation, Denver, Colorado

Abdallah Bendada

Wisconsin Department of Public Instruction, Madison, Wisconsin

Edith Gummer

Northwest Regional Education Laboratory, Portland, Oregon

Catherine Callow-Heusser

Endvision, Inc., Logan, Utah

Stephen Meyer

RMC Research Corporation, Denver, Colorado

Grand Ballroom I, Capacity: 120

3:15 p.m.–3:45 p.m.

104. Connecting Students' Engagement and Math Identity to Mathematics Learning

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

A recent research study evaluates middle school students' perspectives of their engagement in the mathematics classroom (community of practice) and its impact on students' sense of themselves as mathematics learners (math identity). Students' engagement in mathematics is influenced by their prior experiences, personal attitudes, social interactions, and cultural norms.

Tracey Keck

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University of North Carolina at Greensboro, Greensboro, North Carolina; Winston-Salem State University, Winston-Salem, North Carolina

Grand Ballroom A, Capacity: 120

105. Preschool Mathematics PCK Interview Predicts Children's Outcomes

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

To assess the external validity of a teacher interview for preschool mathematics pedagogical content knowledge (PCK), twenty-six teachers were interviewed, their teaching observed, and their students assessed on the TEMA-3. Analysis revealed two PCK interview factors, one associated with teaching practices and one with children's outcomes.

Jennifer Susan McCray

jmccray@erikson.edu

Erikson Institute, Chicago, Illinois

Grand Ballroom B, Capacity: 120

4:00 p.m.–4:30 p.m.

106. Understanding Basic Mathematics Ideas: What Do They Bring to Teaching?

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

This study will report on six middle grade teachers' use and understanding of two basic mathematical ideas: 0 as a divisor and the equal sign. None of the teachers addressed $0/0$, and only one stressed the equivalence concept of the equal sign during teaching. Interviews confirmed teachers' weak understanding of these ideas.

Meixia Ding

University of Nebraska—Lincoln, Lincoln, Nebraska

Xiaobao Li

Western Carolina University, Cullowhee, North Carolina

Gerald Kulm

Texas A&M University, College Station, Texas

Grand Ballroom A, Capacity: 120

4:00 p.m.–4:30 p.m. (continued)

107. Writing a Story to Live By as a Mathematics Teacher: Identity and Content

INDIVIDUAL PAPER SESSION (30-MINUTE SESSION)

Our research uses narrative inquiry to understand the complexity of teachers' mathematical identity and its influences on teachers' content knowledge in their practice. Our data suggest a need for an explicit exploration of the ways in which an elementary school teacher's mathematical identity is constructed relative to content and practice.

Florence Glanfield

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University of Alberta, Edmonton, Alberta

M. Shaun Murphy

University of Saskatchewan, Saskatoon, Saskatchewan

Grand Ballroom B, Capacity: 120



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