

Research Pre-session Planning Committee

NCTM Research Committee

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Announcements

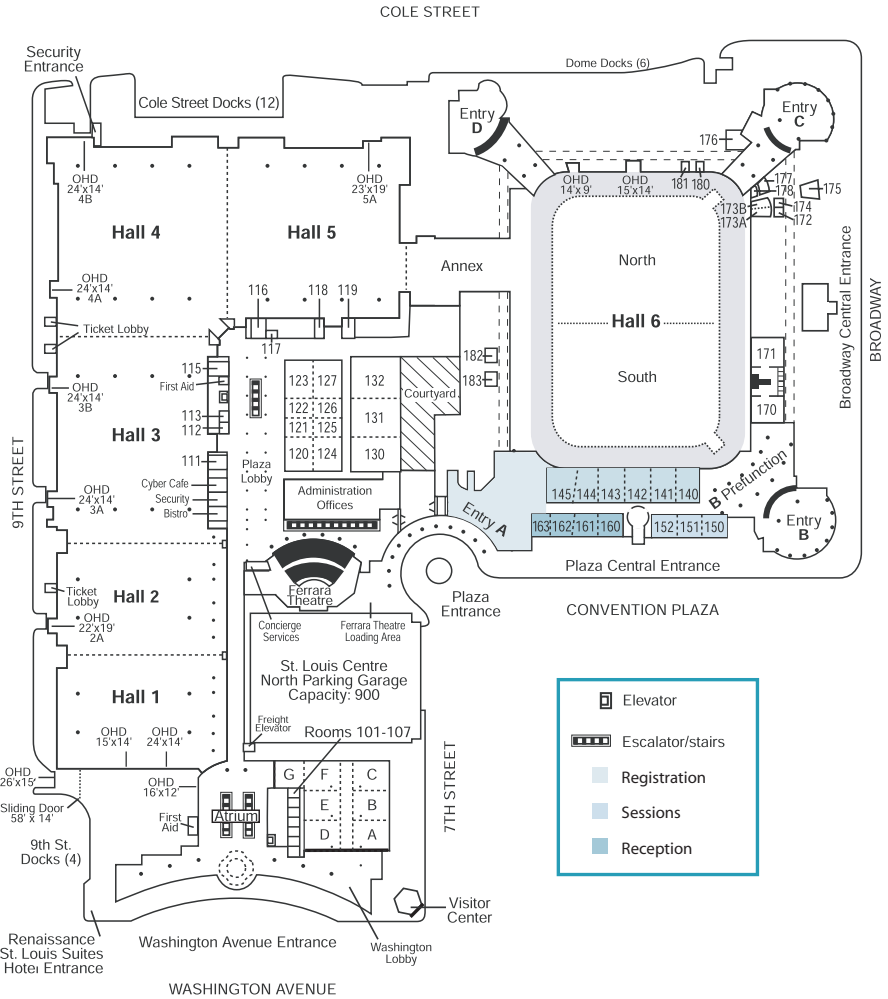
- Registration will be held in Prefunction Area A near Room 145 on Level 1 at the America's Center. The times are Monday, 4:30 p.m. to 7:00 p.m., and Tuesday, 7:00 a.m. to 3:00 p.m. Registration is required for attendance and badges must be worn for all sessions.
- A light reception will be held on Monday evening in rooms 160–163 from 8:30 p.m. to 10:00 p.m. following the opening session at 7:00 p.m. in Rooms 140–145.
- Research posters will be available for viewing and discussing with the presenters at Prefunction Area B near Room 140 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 Atlanta, Georgia, in April 2007, will be available online June 19, 2006.
- Be sure to visit the Exhibit Hall for the NCTM Bookstore, which has a special table on research.



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America's Center Level 1



Monday, April 24, 2006

7:00 p.m.–8:30 p.m.

1. Unifying Mathematics Education Research by Quantifying Qualitative Insight

OPENING SESSION

Many insights from mathematics education research seem to be robust (since they have been duplicated across research studies) but simultaneously appear to be beyond measurement. These include, for example, models of student conceptual change, or understanding the relationship between situated cognition and individual cognition in mathematics. As researchers, we have sometimes bemoaned the fact that these concepts and other concepts central to the mathematical learning of students almost defy measurement (e.g., students' use of additive versus multiplicative models when attacking mathematical problems) and modeling using the traditional techniques that we cut our research teeth on (e.g., factor analysis, analysis of variance, etc). The focus of this presentation is to outline developments in the statistical literature over the past 20 years that may allow us as a research community to bring quantitative redress to these burgeoning qualitative insights.

Barry Sloane

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Arizona State University, Tempe, Arizona

140-145 (America's Center) Capacity: 1400

Tuesday, April 25, 2006

8:30 a.m.–9:00 a.m.

2. Studying the Academic Choices of Mathematically Talented College Women

INDIVIDUAL PAPERS

This study found that four central factors influenced mathematically talented college women's choice of major: environment, behavior, talent, and value, where "value" had the highest relative influence. Value conflicts were often cited as the central reason (and occasionally the only reason) that a participant was not majoring in mathematics.

Judith Lynn Gieger

lgieger@oglethorpe.edu

Oglethorpe University, Atlanta, Georgia

150 (America's Center) Capacity: 100

3. Exploring the Use of Mathematical Language: What Do Teachers Need to Know?

WORK SESSION

This session investigates teachers' use of mathematical language as one element of knowing mathematics for teaching. Using classroom video segments, participants will focus on the mathematical issues that arise in teachers' and students' exchanges, will consider the choices teachers face, and what this implies for the knowledge needed for teaching.

Deborah Loewenberg Ball

dball@umich.edu

University of Michigan, Ann Arbor, Michigan

Laurie Sleep

University of Michigan, Ann Arbor, Michigan

152 (America's Center) Capacity: 105

4. A Habits-of-Mind Framework Supports Knowledge for Teaching Geometry

WORK SESSION

This session will lay out knowledge for teaching specific to geometry and demonstrate how a geometric habits-of-mind framework contributes to teachers attaining this knowledge.

Rachel E. Wing

rwing@edc.org

Education Development Center, Newton, Massachusetts

Mark J. Driscoll

Education Development Center, Newton, Massachusetts

Daniel J. Heck

Horizon Research, Inc., Chapel Hill, North Carolina

151 (America's Center) Capacity: 100

5. The Untapped Potential of Mathematics Education Research to Address Equity

THEMATIC PRESENTATION

This presentation provides an overview of existing literature on equity in mathematics education by examining the untapped potential within it to address issues of power, race, and access. The presenters are a subset of authors of a chapter in the forthcoming revision of the *Handbook of Research on Mathematics Teaching and Learning*.

Tonya Gau Bartell

tbartell@udel.edu

University of Delaware, Newark, Delaware

Vanessa R. Pitts Bannister

Virginia Tech, Blacksburg, Virginia

Daniel Battey

Arizona State University, Tempe, Arizona

Megan Loef Franke

University of California at Los Angeles, Los Angeles, California

Victoria Hand

University of Wisconsin at Madison, Madison, Wisconsin

Danny B. Martin

University of Illinois at Chicago, Chicago, Illinois

Joi Spencer

University of California at Los Angeles, Los Angeles, California

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6. Understanding and Cultivating Reasoning and Proof in the Early Grades

RESEARCH SYMPOSIUM

In this session, we consider issues of reasoning and proof in the early grades. We report on investigations regarding students' reasoning and proving capabilities; the design of curriculum materials intended to develop students' reasoning and proving capabilities; and the role of teachers in promoting students' reasoning and proving capabilities.

Gabriel J. Stylianides

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University of Pittsburgh, Pittsburgh, Pennsylvania

Andreas J. Stylianides

University of California—Berkeley, Berkeley, California

Eric J. Knuth

University of Wisconsin—Madison, Madison, Wisconsin

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7. Classroom Processes and Student Learning in Mathematics

RESEARCH SYMPOSIUM

This session shares empirical findings of relations between students' development as learners of mathematics and their perceptions of instruction. We focus on students holistically, from the perspective that mathematics success is measured through gains in conceptual understanding and through improved motivation and affective regard for oneself as a mathematics learner.

Carol E. Malloy

cmalloy@email.unc.edu

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

Mark W. Ellis

California State University—Fullerton, Fullerton, California

Judith Meece

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

Jill Hamm

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

Discussant

Edward A. Silver

University of Michigan, Ann Arbor, Michigan

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8:30 a.m.–10:00 a.m. (continued)

8. Teaching Mathematics for Social Justice in the Young People’s Project

RESEARCH SYMPOSIUM

This session describes a collaboration between the Young People’s Project (YPP), youth “arm” of the Algebra Project, and a researcher-proponent of teaching mathematics for social justice. We will report initial stages, including influence on YPP instructors and students vis-à-vis mathematical understanding, sociopolitical consciousness, sense of agency, and orientations toward mathematics.

Eric H. Gutstein

gutstein@uic.edu

University of Illinois at Chicago, Chicago, Illinois

Omo Moses

Young People’s Project, Chicago, Illinois

Javier Maisonet

Young People’s Project, Chicago, Illinois

Cynthia Gonzalez

Young People’s Project, Chicago, Illinois

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9:05 a.m.–9:35 a.m.

9. Developing Math Talent: The Impact of Challenging Curriculum and Discourse

INDIVIDUAL PAPERS

Project M3: Mentoring Mathematical Minds, a Javits research grant, addresses critical issues regarding curriculum and instruction for elementary school students with mathematical promise. This session presents empirical data on the implementation of a high-level curriculum focused on discourse and achievement results of a diverse cohort of students and a comparison group.

Katherine Gavin

kathy.gavin@uconn.edu

University of Connecticut, Storrs, Connecticut

Linda Jensen Sheffield

Northern Kentucky University, Highland Heights, Kentucky

150 (America’s Center) Capacity: 100

9:40 a.m.–10:10 a.m.

10. Engaging Preschoolers in Mathematical Discourse

INDIVIDUAL PAPERS

This session will describe a preschool intervention during which children modeled and discussed the mathematics embedded in everyday situations. Those who received the intervention showed larger gains than their comparison group counterparts in mathematical performance, use of mathematical language, and ability to explain and justify their thinking.

Helena P. Osana

osana@education.concordia.ca

Concordia University, Montreal, Quebec

Mary Ann Chacko

Concordia University, Montreal, Quebec

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10:30 a.m.–11:00 a.m.

11. Improving Teachers' Content Knowledge through Scaffolded Instruction

INDIVIDUAL PAPERS

This study explores language for mediation by considering the talk of scaffolding between adult learners as they develop deeper levels of mathematical understanding during a professional development program designed to increase mathematical content knowledge.

Lillie R. Albert

albertli@bc.edu

Boston College, Chestnut Hill, Massachusetts

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12. Inducting New Researchers: Mentoring Session

MENTORING SESSION

Graduate students and new faculty members please come and 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.

Marilyn E. Strutchens

strutme@auburn.edu

Auburn University, Auburn, Alabama

Deborah Loewenberg Ball

University of Michigan, Ann Arbor, Michigan

Glen Blume

Pennsylvania State University, University Park, Pennsylvania

Jinfa Cai

University of Delaware, Newark, Delaware

Michaele Chappell

Middle Tennessee State University, Murfreesboro, Tennessee

James Hiebert

University of Delaware, Newark, Delaware

Carol E. Malloy

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

Danny B. Martin

University of Illinois at Chicago, Chicago, Illinois

W. Gary Martin

Auburn University, Auburn, Alabama

James A. Middleton

Arizona State University, Tempe, Arizona

Lew Romagnano

Metropolitan State College of Denver, Denver, Colorado

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13. Communities of Practice: Learning-Site Visits and Lesson Study

THEMATIC PRESENTATION

Strengthening mathematics teaching and learning requires focused and thoughtful collegial interactions about mathematics and how students learn that mathematics. This session focuses on two models that support these kinds of interactions, learning-site visits and lesson study, situating them in the context of the broader research framework of professional learning communities.

Linda Ruiz Davenport

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Boston Public Schools, Boston, Massachusetts

Catherine Miles Grant

Education Development Center, Newton, Massachusetts

Michael A. Carter

Roosevelt University, Chicago, Illinois

Jane Gorman

Education Development Center, Newton, Massachusetts

June Mark

Education Development Center, Newton, Massachusetts

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14. Building Capacities for Problem Solving in Elementary School Classrooms

WORK SESSION

A research study in two urban elementary schools examines whether possessing a set of mathematical convictions enables students to become more competent and confident problem solvers. This presentation provides a format for the research team to share initial findings and create a dialogue about building problem-solving capacities.

Judith F. McVarish

jfm7@nyu.edu

New York University, New York, New York

John Tapper

New York University, New York, New York

Patricia Birkmeier

New York City Schools, New York, New York

Anne Marie Marshall

University of Maryland, College Park, Maryland

Margot Ely

New York University, New York, New York

Belen Matias

New York University, New York, New York

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15. How Teachers and Students View Generality

THEMATIC PRESENTATION

The presenters will provide a multiperspective look at the generalization of numeric situations. First, we will look at how students view generality and discuss the impact this has on their schema. Then, we will address the challenges that teachers face as they provide instruction related to generalization.

David D. Barker

ddb21d@mizzou.edu

University of Missouri—Columbia, Columbia, Missouri

John Lannin

University of Missouri—Columbia, Columbia, Missouri

Brian Townsend
University of Northern Iowa, Cedar Falls, Iowa

Ira Papick
University of Missouri—Columbia, Columbia, Missouri

Jon Star
Michigan State University, East Lansing, Michigan

Amy Ellis
University of Wisconsin—Madison, Madison, Wisconsin

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16. Randomized Trials in Mathematics Education Research

RESEARCH SYMPOSIUM

Government agencies emphasize the importance of evidence-based practices and instructional materials, with randomized trials as the gold standard. Four researchers describe their own experimental studies and place them in a mathematics education research context. Discussants critique the work from perspectives of the NRC report and the What Works Clearinghouse.

Douglas H. Clements
clements@buffalo.edu
University at Buffalo, State University of New York, Buffalo, New York

Julie H. Sarama
University at Buffalo, State University of New York, Buffalo, New York

Kenneth Koedinger
Carnegie Mellon University, Pittsburgh, Pennsylvania

Gary W. Ritter
University of Arkansas, Fayetteville, Arkansas

Sharon Senk
Michigan State University, East Lansing, Michigan

Brett Miller
U.S. Department of Education, Washington, D.C.

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17. Theoretical and Methodological Issues in Research on Teachers' Beliefs

RESEARCH SYMPOSIUM

This presentation will explore implications of looking at beliefs structures as well as content when seeking to explain and facilitate change; theoretical alternatives to viewing teachers' beliefs and practice as inconsistent; and consequences of the theoretical and methodological assumptions implicit in typical research designs.

Keith R. Leatham

kleatham@mathed.byu.edu

Brigham Young University, Provo, Utah

Denise S. Mewborn

University of Georgia, Athens, Georgia

Natasha Speer

Michigan State University, East Lansing, Michigan

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18. Research and Future Directions on Latinos: Connecting Discourse and Practice

RESEARCH SYMPOSIUM

This interactive presentation examines the criticality of academic discourse on Latinos' learning of mathematics. Classroom videos will be analyzed by panelists and audience regarding what constitutes academic discourse and its relation among students' first and second languages and mathematics learning.

Hector Morales

hmorales@uic.edu

University of Illinois at Chicago, Chicago, Illinois

Sylvia Celedon-Pattichis

University of New Mexico, Albuquerque, New Mexico

Diane Torres-Velasquez

University of New Mexico, Albuquerque, New Mexico

Virginia Horak

University of Arizona, Tucson, Arizona

Lena Licón Khisty

University of Illinois at Chicago, Chicago, Illinois

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19. Balancing Conflicting Agendas in Professional Development

RESEARCH SYMPOSIUM

This symposium documents the tensions inherent in collaborating with teachers in the context of high-stakes accountability. Presenters will share analyses of their professional development collaborations. In each instance, the presenter will document the difficulties that arose when attempting to balance their agenda against the demands of the district and state.

Kay J. McClain

kay.mcclain@vanderbilt.edu

Vanderbilt University, Nashville, Tennessee

Hilda Borko

University of Colorado at Boulder, Boulder, Colorado

Jere Confrey

Washington University in Saint Louis, Saint Louis, Missouri

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11:05 a.m.–11:35 a.m.

20. The Role of Inscriptions in the Understanding of a Probability Distribution

INDIVIDUAL PAPERS

This session presents findings from a study that investigated fourth-grade students' development of an understanding of probability distribution through a sequence of tasks. The focus of the presentation will be students' inscriptions that are generated to support their arguments in understanding a binomial distribution on a particular task.

Sibel Kazak

skazak@wustl.edu

Washington University in Saint Louis, Saint Louis, Missouri

150 (America's Center) Capacity: 100

11:40 a.m.–12:10 p.m.

21. Students' Perspectives on Graphing Calculator Use: Before, During, and After

INDIVIDUAL PAPERS

How do students feel about graphing calculator use before, during, and after problem solving? This study presents the results of a case study of 12 students and how they perceive the graphing calculator influences their problem-solving experience.

Allison McCulloch

amccullo@eden.rutgers.edu

Rutgers University, New Brunswick, New Jersey

150 (America's Center) Capacity: 100

1:00 p.m.–1:30 p.m.

22. Teacher Leaders and Distributed Leadership in Exemplary HS Math Departments

INDIVIDUAL PAPERS

This presentation explores the mathematics department chair's role as a teacher leader and how his or her involvement has effected the development of distributed leadership within the mathematics department and how it affects student achievement and parental involvement.

Donna Numeroff

dnume@bellsouth.net

*Broward Country School District—Stoneman Douglas High School,
Parkland, Florida*

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23. Middle Grades Students' Algebraic Understanding of Change

INDIVIDUAL PAPERS

Using factor analysis, hierarchical linear modeling, and qualitative analyses, we will describe the breadth and depth of students' algebraic understanding of change at seventh and eighth grades, as well as differences that may be evident between students in MiC and CMP classrooms, based on three years of data collection.

Linda D. Wilson

lwilson@cathedral.org

American Association for the Advancement of Science, Washington, D.C.

Kathleen M. Morris

American Association for the Advancement of Science, Washington, D.C.

Victor Willson

Texas A&M University, College Station, Texas

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1:00 p.m.–2:30 p.m.

24. The U.S. “National” Curriculum: Analysis of State Mathematics Standards

RESEARCH SYMPOSIUM

An analysis of 43 state-level mathematics curriculum frameworks, those that include grade-by-grade learning expectations for the elementary and middle grades, will be shared. In particular, information regarding three strands (Number & Operations, Algebra, and Reasoning) will be presented including similarities and differences in learning expectations across the state documents.

Barbara J. Reys

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University of Missouri—Columbia, Columbia, Missouri

Glenda Lappan

Michigan State University, East Lansing, Michigan

Ok-Kyeong Kim

Western Michigan University, Kalamazoo, Michigan

Shannon Dingman

University of Missouri—Columbia, Columbia, Missouri

Dawn Teuscher

University of Missouri—Columbia, Columbia, Missouri

Jill Newton

Michigan State University, East Lansing, Michigan

Greg Larnell

Michigan State University, East Lansing, Michigan

Lisa Kasmer

Western Michigan University, Kalamazoo, Michigan

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25. NAEP Trends in Math Achievement, Instruction, & Equity: Gains & Gaps

RESEARCH SYMPOSIUM

This session will provide nationally representative evidence about the status of mathematics achievement, affect, and instruction in the U.S. Trends relating to race/ethnicity, SES, and gender will be highlighted. The session will raise important questions about recent gains in achievement and the persistence of some gaps.

Sarah T. Lubienski

stl@express.cities.uiuc.edu

University of Illinois at Urbana-Champaign, Champaign, Illinois

Peter Kloosterman

Indiana University, Bloomington, Indiana

Michele Crockett

University of Illinois at Urbana-Champaign, Champaign, Illinois

Rebecca McGraw

University of Arizona, Tucson, Arizona

William F. Tate

Washington University in Saint Louis, Saint Louis, Missouri

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26. Dissertation Year(s): Necessary Evil or Joyride? How to Start and Survive

WORK SESSION

Presenters share their experiences from the dissertation year. This work session offers graduate students strategies for identifying and narrowing their research ideas. Participants engage in an activity to help identify research interests. Time is set aside for discussion, which is encouraged throughout the session. Graduate students working on dissertations are encouraged to attend and share.

Paula R. Stickle

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Indiana University, Bloomington, Indiana

Crystal Walcott

Indiana University, Bloomington, Indiana

Shelby P. Morge

Indiana University, Bloomington, Indiana

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27. Teaching Algebra in the Elementary Grades

WORK SESSION

This work session is designed to give educators insight into the challenges involved in addressing the Algebra Standard for elementary grades. Participants will engage in video and other presentations featuring a collaboration of researchers and classroom teachers integrating algebra into grades 3 and 4.

Darrell S. Earnest

dearnest@berkeley.edu

University of California, Berkeley, Berkeley, California

Aadina Balti

Boston Public Schools, Boston, Massachusetts

Michelle Anderson

Boston Public Schools, Boston, Massachusetts

Camille Burnett

Tufts University, Medford, Massachusetts

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28. The Discourse of Proof and Argumentation across the Grades

RESEARCH SYMPOSIUM

This symposium presents research that uses discourse to explore proof and argumentation in teaching and learning mathematics across grades K–16. It examines how the forms of proof, including the nature of argumentation and justification and what counts as proof, emerge across grades and how curriculum and instruction can support this.

Maria L Blanton

mblanton@umassd.edu

University of Massachusetts Dartmouth, North Dartmouth, Massachusetts

Barbara J. Dougherty

University of Mississippi, University, Mississippi

Kay J. McClain

Vanderbilt University, Nashville, Tennessee

Jennifer Christian Smith

University of Texas at Austin, Austin, Texas

Despina A. Stylianou

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

Carolyn A. Maher

Rutgers University, New Brunswick, New Jersey

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29. Exploring Leakages in the Math Pipeline for African American Students

RESEARCH SYMPOSIUM

Researchers will present a mixture of quantitative and qualitative studies that focus on the myriad of factors, such as opportunity to learn, parental involvement, peer influences, school policies, recruitment and retention initiatives, and others that help determine whether or not African American students stay in the mathematics pipeline.

Marilyn E. Strutchens

strutme@auburn.edu

Auburn University, Auburn, Alabama

W. Gary Martin

Auburn University, Auburn, Alabama

Joy Black

University of West Georgia, Carrollton, Georgia

Sarah K. Westbrook

Columbus State University, Columbus, Georgia

Massie F. McAdoo

Lakeside High School, Atlanta, Georgia

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30. Supporting Mathematics Specialist Institutes: The Successes and Challenges

RESEARCH SYMPOSIUM

This symposium reports research and development activities of three mathematics specialist projects under way across the country. Each presenter addresses the successes and challenges associated with implementing institutes and other professional development activities to support those teachers who are or will become mathematics specialists in elementary, middle, or secondary schools.

Joy W. Whitenack

jwwhitenack@vcu.edu

Virginia Commonwealth University, Richmond, Virginia

Aimee Ellington

Virginia Commonwealth University, Richmond, Virginia

Tom Dick
Oregon State University, Corvallis, Oregon

Ruth Heaton
University of Nebraska—Lincoln, Lincoln, Nebraska

Denise S. Mewborn
University of Georgia, Athens, Georgia

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1:35 p.m.–2:05 p.m.

31. A Longitudinal Study of Mathematics Curriculum & Student Achievement

INDIVIDUAL PAPERS

In this session we report results from a two-year longitudinal study of the impact of middle school mathematics curricula on students' performance and the classroom learning environment. We provide insights on the measurement of teachers' "fidelity of implementation" and standards-based instructional practices and relate them to differences in student achievement.

James E. Tarr
tarrj@missouri.edu
University of Missouri—Columbia, Columbia, Missouri

Robert E. Reys
University of Missouri—Columbia, Columbia, Missouri

Oscar Chavez
University of Missouri—Columbia, Columbia, Missouri

Jeff Shih
University of Nevada—Las Vegas, Las Vegas, Nevada

Jere Confrey
Washington University in Saint Louis, Saint Louis, Missouri

Edward A. Silver
University of Michigan, Ann Arbor, Michigan

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1:35 p.m.–2:05 p.m. (continued)

32. Exploring Students' Understanding of Trigonometry through Acoustics and Optics

INDIVIDUAL PAPERS

This session reports findings from a design study investigating fifth graders' reasoning about the trigonometry underlying periodic motion, optics, and acoustics. It focuses on students' modeling and building of inscriptions as a means to learn to create Web-based animations involving the reproduction of sound, lighting and shadows, and movement.

Alan P. Maloney

amaloney@wustl.edu

Washington University in Saint Louis, Saint Louis, Missouri

150 (America's Center) Capacity: 100

2:10 p.m.–2:40 p.m.

33. Robust Mathematical Identities of African American Male Students

INDIVIDUAL PAPERS

This study, using qualitative action research methodology, located within a critical postmodern theoretical frame, examined the influence of sociocultural discourses on the agency of four African American men in their early twenties who achieved and persisted in school mathematics.

David W. Stinson

dstinson@gsu.edu

Georgia State University, Atlanta, Georgia

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34. K–8 Teachers' Perceptions of Their Principals' Leadership in Mathematics

INDIVIDUAL PAPERS

This session reports on teachers' perceptions of their principals' instructional leadership in mathematics. Findings come from surveys collected as part of a large-scale study of administrators' "leadership content knowledge" in mathematics. The survey captures teachers' perceptions of their principals' overall mathematics leadership and of their supervision of mathematics instruction.

Kristen E. Reed
kreed@edc.org
Education Development Center, Newton, Massachusetts

Lynn Goldsmith
Education Development Center, Newton, Massachusetts

Barbara Scott Nelson
Education Development Center, Newton, Massachusetts

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3:00 p.m.–3:30 p.m.

35. Implications of a Curriculum Design Perspective on Notions of Fidelity

INDIVIDUAL PAPERS

I employ a design perspective of teaching to emphasize important variation in student activity in two classrooms, both of which could be considered to be implementing a reform curriculum with fidelity. I focus on the ways that teachers' practices influence how the curriculum structures the classroom discourse.

Jeffrey Choppin
jchoppin@its.rochester.edu
University of Rochester, Rochester, New York

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36. How Do We Learn? Early Elementary School African American Students in Mathematics

INDIVIDUAL PAPERS

This session will present research on how early, urban, elementary school African American students negotiate, adapt to, and learn mathematics in NCTM *Standards*-oriented classrooms by describing their patterns of socialization, interaction, and engagement through the consideration of their cultural and psychological orientations.

Lanette R. Waddell
lwaddell@dolphin.upenn.edu
University of Pennsylvania, Philadelphia, Pennsylvania

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37. Examining Mentor Teachers’ Deprivatization in School Communities

WORK SESSION

Current calls for reform in professional development necessitate a better understanding of community development. We will present our research project, which investigates the deprivatization of mentor teachers’ practice within school communities. In particular, we invite participants to examine artifacts and current findings from our project for analysis and discussion.

Ginger A. Rhodes

gar0209@uga.edu

University of Georgia, Athens, Georgia

Thomas E. Ricks

University of Georgia, Athens, Georgia

Dennis Hembree

University of Georgia, Athens, Georgia

Erik Tillema

University of Georgia, Athens, Georgia

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38. What Do We Know about Teacher Knowledge and Student Learning? Implications for Proposals to the National Science Foundation

WORK SESSION

This session describes the research landscape related to mathematics and science teacher education and professional development. It provides advice to researchers interested in participating in various National Science Foundation programs designed to support this agenda.

Elizabeth VanderPutten

evanderp@nsf.gov

National Science Foundation, Arlington, Virginia

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39. Knowledge of Algebra Teaching: Framework, Item Development, Pilot Results

RESEARCH SYMPOSIUM

An update on the MSU Knowledge of Algebra for Teaching Project, including a project overview, conceptual framework for the knowledge of algebra for teaching at the middle and secondary school levels, description of assessment item development, and key findings from pilot testing of our items and test forms across the country in 2004–05.

Joan Ferrini-Mundy

jferrini@msu.edu

Michigan State University, East Lansing, Michigan

Raven McCrory

Michigan State University, East Lansing, Michigan

Sharon Senk

Michigan State University, East Lansing, Michigan

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40. Preservice Teachers' Developing Abilities to Learn How to Learn to Teach

RESEARCH SYMPOSIUM

We present data from an elementary teacher preparation program that aims to equip its graduates with the ability to systematically study teaching and improve their practice over time. The data show the complex, context-dependent, and fragile nature of preservice teachers' abilities to analyze and learn from classroom practice.

James Hiebert

hiebert@udel.edu

University of Delaware, Newark, Delaware

Anne K. Morris

University of Delaware, Newark, Delaware

Dawn Berk

University of Delaware, Newark, Delaware

James E. R. Beyers

University of Delaware, Newark, Delaware

Yuichi Handa

University of Delaware, Newark, Delaware

Stephen Hwang

University of Delaware, Newark, Delaware

Elizabeth M. Sieminski

University of Delaware, Newark, Delaware

Megan Loef Franke

University of California, Los Angeles, Los Angeles, California

140 (America's Center) Capacity: 140

41. Researching the History of Mathematics Teaching: Yesterday, Today, Tomorrow

RESEARCH SYMPOSIUM

In this session the editors of, and active contributors to, the new periodical *The International Journal for the History of Mathematics Education* address the history of mathematics teaching and learning as an emerging research field. Discussion will focus on past achievements and new directions for beginning researchers. Potential contributors' questions are invited.

Alexander P. Karp

apk16@columbia.edu

Columbia University Teachers College, New York, New York

Gert Schubring

Bielefeld University, Bielefeld, Germany

Eileen F. Donoghue

College of Staten Island/City University of New York, Staten Island, New York

V. Frederick Rickey

United States Military Academy, West Point, New York

144 (America's Center) Capacity: 126

42. Partnerships Integrating Preservice and In-Service Mathematics Education

RESEARCH SYMPOSIUM

Partnerships integrating preservice and in-service mathematics education will be presented. We will discuss findings regarding (1) the effects on children, teachers, and education students from one partnership, and (2) in-service teacher appropriation of reform-oriented practices and preservice teacher learning and perspectives about mathematics teacher practice from a second partnership.

Gina Post

gina.post@ed.utah.edu

University of Utah, Salt Lake City, Utah

Damon Bahr

Utah Valley State College, Orem, Utah

Lynette Frenette

University of Utah, Salt Lake City, Utah

Man Hung

University of Utah, Salt Lake City, Utah

142 (America's Center) Capacity: 168

43. The Effect of Professional Development and Curriculum Differences on Students' Achievement

INDIVIDUAL PAPERS

This study examines how students' scores on algebra and number concepts change over time as a result of instruction and of their teachers' professional development (PD) experiences. Two cohorts of students (50 classrooms) were assessed during successive years, and their scores were related to their teachers' PD by curriculum and text emphasis.

Mary Margaret Capraro

mmcapraro@coe.tamu.edu

Texas A&M University, College Station, Texas

Victor Willson

Texas A&M University, College Station, Texas

Robert M. Capraro

Texas A&M University, College Station, Texas

Gerald Kulm

Texas A&M University, College Station, Texas

145 (America's Center) Capacity: 170

44. Starting with the Basics to Bring Reform to the Elementary School Math Classroom

INDIVIDUAL PAPERS

We describe a professional development project with first- and second-grade teachers from an urban school district aimed at reducing significant and persistent achievement gaps in mathematics. The rationale of the project, how it differs from other related professional development efforts, and longitudinal data on participating students' computational strategy development will be discussed.

Edward Rathmell

edward.rathmell@uni.edu

University of Northern Iowa, Cedar Falls, Iowa

Anthony J. Gabriele

University of Northern Iowa, Cedar Falls, Iowa

150 (America's Center) Capacity: 100

Poster Sessions

Tuesday, April 25, 2006

4:45 p.m.–6:00 p.m.

45. A Course on Rational Numer Concepts for Middle Grades Mathematics Teachers

POSTER SESSION

This session will report on the progress toward the creation of mathematics courses that delve deeply into the content of middle school mathematics. In addition, we will also be discussing community participation analysis (CPA), a tool we are developing to identify the professional development needs of a group of teachers.

JoAnn Cady

jcady@utk.edu

University of Tennessee, Knoxville, Tennessee

Prefunction Area B (America's Center) Capacity: 350

46. Gender Issues in Mathematics Achievement in Tennessee

POSTER SESSION

Research asking the question of how school locale intersects with gender, socio-economic status, and mathematics achievement in Tennessee found some expected and surprising results. This poster session will present the result of the initial research as well as provide some insight into preliminary results of an extension of the research.

Terri M. Hopkins

thopkins@utk.edu

University of Tennessee, Knoxville, Tennessee

Prefunction Area B (America's Center) Capacity: 350

Poster Sessions

4:45 p.m.–6:00 p.m. (continued)

47. Probabilistic Misconceptions across Age and Gender

POSTER SESSION

This poster presentation will address the need, methodologies, and results of the researcher’s doctoral thesis, titled “Probabilistic Misconceptions across Age and Gender.” Prior research suggests that students’ views of simple and compound events and conditional probability change across grade level and age. This study expands that idea and looks at gender as a variable.

James R. Kennis

jugglinjim@hotmail.com

Columbia University Teachers College, New York, New York

Prefunction Area B (America’s Center) Capacity: 350

48. Using Area Models to Make Sense of Fraction Multiplication in Middle School

POSTER SESSION

This study explores how seventh-grade students use area models to make sense of fraction multiplication. Findings indicate that area models can support the development of measurement and operation concepts; however, conventional fraction notation may hinder students’ ability to use area models as a conceptual tool for understanding fraction multiplication.

Rozy Brar

rozy@berkeley.edu

University of California, Berkeley, Berkeley, California

Prefunction Area B (America’s Center) Capacity: 350

49. Probability in Middle Grades Textbooks, 1957–2004

POSTER SESSION

I will discuss the findings of a content analysis of eight series of textbooks, specifically related to the portion of the text devoted to probability, and the learning expectations and levels of cognitive demand required by probability tasks. Additionally, I highlight some trends in the treatment of probability over time.

Dustin L. Jones

dljones@cmsu1.cmsu.edu

Central Missouri State University, Warrensburg, Missouri

Prefunction Area B (America's Center) Capacity: 350

50. High School Teachers' Beliefs: Activities, Applications, and Abstractions

POSTER SESSION

This poster focuses on my doctoral research: investigating high school mathematics teachers' beliefs about teaching and learning geometry. I will share some of the significant results of the quantitative analysis of my questionnaire, to which 520 mathematics teachers from the United States, Australia, England, and Canada responded.

Brenda Strassfeld

bs49@nyu.edu

New York University, New York, New York; University of Plymouth, Plymouth, England

Prefunction Area B (America's Center) Capacity: 350

51. The Impact of Lesson Study on American Teachers and Students

POSTER SESSION

This poster session will share how the researcher sought to examine the effects lesson study would have on mathematics teachers and students in a large urban school district. The researcher will share the methodology used as well as research results related to engagement, collaboration, conceptual understanding, and student achievement.

Rachelle D. Meyer

rachelle_meyer@baylor.edu

Baylor University, Waco, Texas

Prefunction Area B (America's Center) Capacity: 350

Poster Sessions

4:45 p.m.–6:00 p.m. (continued)

52. Developmental Mathematics: It's Time to Talk

POSTER SESSION

Although more than 70 percent of high school graduates move on to higher education, 40 to 50 percent require remediation. Research results of an analysis of fall 2004 developmental mathematics classes at a state university provide a basis for discussion. I will provide an overview of interesting student profiles and review some surprising research results.

Jane Keleher

j.keleher@comcast.net

York College, City University of New York, Jamaica, New York

Prefunction Area B (America's Center) Capacity: 350

53. A Framework for Evaluating Textbook Assessments: Lessons Learned

POSTER SESSION

This session will explore findings regarding the extent to which the NCTM *Standards* are reflected in textbook publishers' assessments. Participants will consider the use of the *Principles and Standards for School Mathematics* framework for determining the strengths and weaknesses of classroom assessments and for highlighting potential modifications that will enhance instruction.

Morgan Avon Platt

phunsader@aol.com

Polk County Schools, Bartow, Florida

Denisse R. Thompson

University of South Florida, Tampa, Florida

Patricia D. Hunsader

University of South Florida, Tampa, Florida

Prefunction Area B (America's Center) Capacity: 350

54. Teachers' Beliefs about Conceptual Understanding in Mathematics

POSTER SESSION

This study investigates teachers' beliefs about what constitutes a mathematical understanding and what they believe indicates student understanding in the moment-to-moment flow of the classroom. Participants described the performances, verbalizations, and affect that they read as indicators that their students understood the concepts presented.

Stephen D. Lovelace
stevel@wymast.org

University of Wyoming, Laramie, Wyoming

Prefunction Area B (America's Center) Capacity: 350

55. Mathematics Anxiety Perceptions of College Students

POSTER SESSION

This poster focuses on our doctoral research investigating conceptions of beginning calculus and liberal arts mathematics college students about mathematics anxiety. The poster includes goals of our research, interview protocol with responses, themes found to be prevalent, and implications. The results indicate instructors influence student mathematics anxieties in several ways.

Debbie W. Waggoner
debbie.waggoner@eku.edu

Eastern Kentucky University, Richmond, Kentucky

Courtenay Mayes

Great Oaks Institute of Technology, Cincinnati, Ohio

Sharilyn Granade

Wilkes Community College, Wilkesboro, North Carolina

Paula Schlesinger

Mayland Community College, Spruce Pine, North Carolina

Prefunction Area B (America's Center) Capacity: 350

Poster Sessions

4:45 p.m.–6:00 p.m. (continued)

56. Exploring Critical Theories of Race in Mathematics Education for Black Students

POSTER SESSION

To better understand the experiences of African American students who participate in mathematics learning, educators need to adopt a critical perspective that dissects the realities of race in their schooling process. The role of race and racial identity—that is, the extent to which societal and personal meanings for race influence a person’s self-concept and consequent behavior—in the lives of African American students is an understudied and undertheorized phenomenon, particularly in mathematics education. I will draw from emerging work on African American race and racial identity development in mathematics education, which has acknowledged the relevance of race and racial identity in mathematics learning and participation.

Ebony O. McGee
emcgee2@uic.edu

University of Illinois at Chicago, Chicago, Illinois

Prefunction Area B (America’s Center) Capacity: 350

57. The Frequency of High-Level Questioning in Middle School Math Classrooms

POSTER SESSION

High-level questions involve students in thinking and excite student interest. But are these questions truly taking hold in today’s middle school math classroom? I observed in 11 middle school math classrooms and recorded teachers’ questioning practices in an attempt to answer this question.

Kyle L. Sonnedecker
ksonnede@usd497.org

Sunflower Elementary School, Lawrence, Kansas

Prefunction Area B (America’s Center) Capacity: 350

58. TI-Technology, the Ark of Achievement for African American Students?

POSTER SESSION

This project investigates the impact and relationship, if any, between handheld technology and the mathematical achievement of African American students in a suburban school system.

Christian Anderson

christian_anderson_2000@yahoo.com

Morgan State University, Baltimore, Maryland

Prefunction Area B (America's Center) Capacity: 350

59. Engaging Teachers in the Collaborative Evaluation of Mathematics Programs

POSTER SESSION

This session presents a model for providing mathematics teachers with professional growth by improving their capacity to use evaluation data and engage in continuous improvement through data-based decision making. Our work with two urban elementary schools through the Collaborative Evaluation Communities in Urban Schools project funded by NSF will be described.

Kelli R. Thomas

kthomas@ku.edu

University of Kansas, Lawrence, Kansas

Lesia Covington Clarkson

University of Minnesota, Minneapolis, Minnesota

Prefunction Area B (America's Center) Capacity: 350

60. Shooting for the Stars: The Mathematics Success of an African American Male

POSTER SESSION

This poster documents the mathematics success of an African American male high school student and in so doing, identifies key themes that inform current understanding of the mathematics achievement and career attainment of African American male students.

LaTasha Renee Thompson

thompson3921@hotmail.com

Morgan State University, Baltimore, Maryland

Prefunction Area B (America's Center) Capacity: 350

Poster Sessions

4:45 p.m.–6:00 p.m. (continued)

61. A Study of Computational Estimation Processes of Preservice Teachers

POSTER SESSION

This poster session will provide results of a study conducted with preservice elementary and special education teachers concerning computational estimation. A computational test helped identify good and poor estimators. Good and poor estimators were interviewed using an interview format to compare and contrast strategies used by both types of estimators.

Robert Q. Berry
rqb3e@virginia.edu

University of Virginia, Charlottesville, Virginia

Prefunction Area B (America's Center) Capacity: 350

62. All-Boy Mathematics Classes in Middle School

POSTER SESSION

Investigations focused on six teachers in three schools and their implementation of a gendered class program. The five interwoven strands of mathematics proficiency and standards-based teaching guided observational analysis. Textbook use, time allocation, and teachers' beliefs were also considered, and findings include details of teaching strategies that were successful with middle school boys.

Amanda N. Davis
amandand@verizon.net

University of Louisville, Louisville, Kentucky

Prefunction Area B (America's Center) Capacity: 350

63. Sixth-Grade Students' Understanding of the Density of the Rational Numbers

POSTER SESSION

A fundamental idea in K–12 mathematics instruction is developing an understanding of the real number system. This study explores sixth-grade students' understanding of one key aspect of the real number system—the density of the rational numbers. The explanations used by students are highlighted. Educational implications are discussed.

Meghan M. Shaughnessy

mshaughn@berkeley.edu

University of California, Berkeley, Berkeley, California

Prefunction Area B (America's Center) Capacity: 350

64. Exploring One Teacher's Experiences Implementing Reform-Based Mathematics

POSTER SESSION

This case study illustrates a teacher's experiences with the implementation of reform-based mathematics. Given that reform-based mathematics is quite complicated, we seek to understand how we can support teachers with the complex challenges associated with its implementation. Our findings showcase the necessity for integrating metacognitive skills into teachers' learning opportunities.

Nicole Elaine Davis

nicdavis@u.washington.edu

University of Washington, Seattle, Washington

Prefunction Area B (America's Center) Capacity: 350

65. A Critical Social Lens on Young Children's Everyday Mathematical Events

POSTER SESSION

This session presents findings from a research project that investigated young children's everyday mathematical activities. Drawing on ethnographic approaches, this study aimed to understand the mathematical events and practices of four-year-old African American children, from various social and economic backgrounds, as situated within their immediate (e.g., home) and broader societal contexts.

Grace M. Benigno

grace@umd.edu

University of Maryland, College Park, Maryland

Prefunction Area B (America's Center) Capacity: 350

Poster Sessions

4:45 p.m.–6:00 p.m. (continued)

66. Effects of the TI-Navigator on Attitudes, Achievement, and Formative Assessment

POSTER SESSION

This poster session will present data on the effects of using a TI-Navigator System on the teacher's use of formative assessment, students' understanding of matrices, students' beliefs about mathematics, and students' confidence in their mathematical ability.

Judith Olson

jkolson@hawaii.edu

University of Hawaii at Manoa, Honolulu, Hawaii

Melfried Olson

University of Hawaii at Manoa, Honolulu, Hawaii

Irene MacKay

University of Hawaii at Manoa, Honolulu, Hawaii

Prefunction Area B (America's Center) Capacity: 350

67. Prospective Secondary School Teachers' Precollegiate Mathematical Content

POSTER SESSION

How competent are today's prospective secondary school mathematics teachers to teach under the pressures of No Child Left Behind? This session will present the results of a descriptive study on 29 prospective college students' knowledge of mathematical content and vocabulary identified as prime content on Pennsylvania's secondary school state assessments. A comparative analysis was also performed.

Jane M. Wilburne

jmw41@psu.edu

Pennsylvania State University at Harrisburg, Middletown, Pennsylvania

Prefunction Area B (America's Center) Capacity: 350

68. Mathematics Education in Transition: The Experience of Post-Soviet Kazakhstan

POSTER SESSION

Contemporary issues in mathematics education in post-Soviet Kazakhstan as seen through the lens of NCTM's *Principles and Standards for School Mathematics* are explained. The poster examines dramatic changes related to equity, curriculum, and assessment issues that have occurred during the transition from Russian to Kazakh as the language of instruction and the transition to a free market economy.

Zaur Berkaliev

berkaliev@iit.edu

Illinois Institute of Technology, Chicago, Illinois

Prefunction Area B (America's Center) Capacity: 350

69. Mathematics for Mathematics Educators: A Course for Ph.D. Students

POSTER SESSION

This poster session presents aspects of a two-semester course for Ph.D. students in mathematics education. The goal of the course was for participants to develop strategies that support lifelong learning of mathematics; particularly of mathematics related to their professional work. Instructors and students present posters.

Sarah Sword

ssword@edc.org

Education Development Center, Newton, Massachusetts

Daniel Chazan

University of Maryland, College Park, College Park, Maryland

Eden M. Badertscher

University of Maryland, College Park, College Park, Maryland

Anne Marie Marshall

New York University, New York, New York

Michael Lueke

University of Maryland, College Park, College Park, Maryland

Christy Graybeal

University of Maryland, College Park, College Park, Maryland

Prefunction Area B (America's Center) Capacity: 350

Poster Sessions

4:45 p.m.–6:00 p.m. (continued)

70. Survey of Instructional Practices in Early School Mathematics

POSTER SESSION

This presentation will describe the development of a survey of instructional practices in the preschool through primary years.

Brenda L. Wolodko
brenda.wolodko@utoledo.edu
University of Toledo, Toledo, Ohio

Sally M. Atkins-Burnett
University of Toledo, Toledo, Ohio

Prefunction Area B (America's Center) Capacity: 350

71. Factors That Support or Inhibit Preservice Teachers' Participation in Discussions

POSTER SESSION

A group of 148 preservice teachers completed a questionnaire about their experiences participating in classroom discussions during mathematics content courses in their elementary school teacher-education program. Responses were qualitatively analyzed for factors that support and inhibit their participation. Results suggest the importance of social factors and beliefs about learning through communication.

Amanda J. Hoffmann
ajh@udel.edu
University of Delaware, Newark, Delaware

Prefunction Area B (America's Center) Capacity: 350

72. The Pershing/Rice University Math Partnership

POSTER SESSION

Pershing Middle School, of the Houston Independent School District with support from the Rice University School Mathematics Project, was awarded a Focused

Impact Grant by the Houston A+ Challenge. The research conducted as part of the evaluation of the program during its first year of operation will be presented.

Richard Parr

rparr@rice.edu

Rice University, Houston, Texas

Caren Grant

Houston Independent School District, Houston, Texas

Prefunction Area B (America's Center) Capacity: 350

73. Transforming Teaching by Modeling Constructivist Principles

POSTER SESSION

This poster presentation will present the findings of a study on transforming teaching within a preservice constructivist mathematics course from the perspective of the preservice teacher. Artifacts will be presented that capture transformative teaching.

Maria T. Mitchell

mtmmit@aol.com

Central Connecticut State University, New Britain, Connecticut

Prefunction Area B (America's Center) Capacity: 350

74. Teachers as Professional Developers: What Do They Learn?

POSTER SESSION

Six elementary school teachers led 40-hour Cognitively Guided Instruction (CGI) workshops for teachers from another district. We will report on the learning of the staff developers during the project, focusing on their beliefs, knowledge, and practice.

Janet E. Warfield

jwarfie@ilstu.edu

Illinois State University, Normal, Illinois

Cheryl A. Lubinski

Illinois State University, Normal, Illinois

Prefunction Area B (America's Center) Capacity: 350

Poster Sessions

4:45 p.m.–6:00 p.m. (continued)

75. A Step Toward Closing the Gap between University Programs and Schools

POSTER SESSION

This presentation will include the design, findings, and implications of a qualitative research study that intended to explore the nature of communications between two middle school mathematics student teachers and their cooperating teachers in meetings with and without the university supervisor.

Evrin Erbilgin

eee0565@garnet.acns.fsu.edu

Florida State University, Tallahassee, Florida

Maria L. Fernandez

Florida State University, Tallahassee, Florida

Prefunction Area B (America's Center) Capacity: 350

76. Key Elements of a Mathematics Intervention Program for Girls

POSTER SESSION

This presentation will share critical program elements of the Northern Nevada Girls Math & Technology Program. Data collected since 1998 include recent interviews with the program's first participants and their parents. The presentation will focus on the program's impact and, in particular, key program elements associated with the program's success.

Lynda R. Wiest

wiest@unr.edu

University of Nevada, Reno, Reno, Nevada

Prefunction Area B (America's Center) Capacity: 350

77. Teachers as Learners Learning Mathematics: Impact on Students' Achievement

POSTER SESSION

This session presents results from a yearlong study of the impact of teachers' professional development in mathematics on students' mathematics achievement. The presenter will share findings from quantitative and qualitative data analysis relative to teachers' professional development learning and students' achievement in this experimental project.

Thomasenia Lott Adams

tlott@coe.ufl.edu

University of Florida, Gainesville, Florida

Prefunction Area B (America's Center) Capacity: 350

78. What Is Data Literacy? Analyzing Social Studies Data in Mathematics Class

POSTER SESSION

In the Thinking With Data project, we have designed and implemented a theory-based cross-disciplinary curricular unit that is anchored in the use of real-world data to teach data literacy. We report on students' learning, as well as on important and unexpected implications for standards that foster data literacy.

Philip J. Vahey

philip.vahey@sri.com

SRI International, Menlo Park, California

Prefunction Area B (America's Center) Capacity: 350

79. Watching Them Grow: An Empirical Study of Students' Progress in Algebra

POSTER SESSION

This study involved tracking students' progress in algebra using brief assessments. Eighty-eight prealgebra and Algebra I students completed two types of measures across two months. Analyses of students' growth revealed growth on one measure but not on the other. Discussion will focus on implications for teachers regarding monitoring students' progress.

Anne Foegen

afoegen@iastate.edu

Iowa State University, Ames, Iowa

Prefunction Area B (America's Center) Capacity: 350

Poster Sessions

4:45 p.m.–6:00 p.m. (continued)

80. Adaptation, Formulation, and Balance: Teaching with Contextual Problems

POSTER SESSION

This presentation highlights the instructional practices of six high school mathematics teachers with reputations for using contextual problems on a nearly daily basis—how they (a) adapted and used contextual problems from textbooks and other sources, (b) helped the students formulate the problem, and (c) balanced time and attention to the context and the mathematics.

Holly Garrett Anthony
hanthony@tntech.edu

Tennessee Technological University, Cookeville, Tennessee

Prefunction Area B (America's Center) Capacity: 350

81. Investigating Changes in Teachers' Algebra Knowledge for Teaching

POSTER SESSION

As part of a study of what teachers learn from professional development based on classroom artifacts, teachers participated in professional development focusing on algebraic thinking. This session presents data regarding the “algebra for teaching” knowledge that teachers developed during the seminars.

Johannah Nikula
jnikula@edc.org

Education Development Center, Newton, Massachusetts

Nanette Seago
WestEd, Riverside, California

Zuzka Blasi
Education Development Center, Newton, Massachusetts

Prefunction Area B (America's Center) Capacity: 350

82. The Calculus of Race and Ethnicity (CORE) Project: Ethnographic Experiences

POSTER SESSION

The CORE project is an ethnographic study of mathematics students and teachers at a local high school near a university campus. This three-year project report describes the elusive changes in personal and cultural behavior among minority communities in mathematics education programs that often escape the notice of observers and participants alike.

Dylan Eret

dr_eret@mac.com

University of California, Berkeley, Berkeley, California

Prefunction Area B (America's Center) Capacity: 350

83. Fourth- and Fifth-Grade Mathematics Teaching: The Representation of Mathematics

POSTER SESSION

Quantitative data from a three-year study of fourth- and fifth-grade mathematics will be used to describe aspects of mathematics classroom instruction, such as attention to connections, procedures versus concepts versus linking, amount of time on various concepts, and classroom organization.

Anna O. Graeber

annagrae@umd.edu

University of Maryland, College Park, Maryland

Prefunction Area B (America's Center) Capacity: 350

End of Poster Sessions



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Wednesday, April 26, 2006

8:30 a.m.–10:00 a.m.

84. Linking Research and Practice from the Practitioners' Perspective

PLENARY SESSION

One of NCTM's strategic priorities is the linking of research and practice. This session will focus on what it means to link research and practice from the perspective of teachers and teacher leaders; crucial questions from practice for research to address will be discussed; and the challenges of researchers and practitioners forming constructive partnerships in the current environment will be examined.

Diane Briars

dbriars1@pghboe.net

Pittsburgh Board of Education, Pittsburgh, Pennsylvania

Ruth Heaton

University of Nebraska—Lincoln, Lincoln, Nebraska

Matt Larson

Lincoln Public Schools, Lincoln, Nebraska

160-163 (America's Center) Capacity: 580

10:30 a.m.–11:00 a.m.

85. Communication Theory as a Lens to Understand Teachers' Verbal Messages

INDIVIDUAL PAPERS

This session uses communication theory to discuss mathematics teachers' verbal communication. Message design logic, found in constructivist communication literature, is first shared. Afterward, message design logics of mathematics teachers are presented, along with a discussion of the endorsed NCTM communication practices. This leads to a discussion challenging communication assumptions.

Denise B. Forrest

forrest.7@osu.edu

Ohio State University Newark, Newark, Ohio

150 (America's Center) Capacity: 100

86. Getting Published: Conversations with *JRME* Panel Members

WORK 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!

Sarah T. Lubienski

stl@express.cites.uiuc.edu

University of Illinois at Urbana-Champaign, Champaign, Illinois

Steve Williams

Brigham Young University, Provo, Utah

Arthur J. Baroody

University of Illinois at Urbana-Champaign, Champaign, Illinois

Olive Chapman

University of Calgary, Calgary, Alberta

Tom Dick

Oregon State University, Corvallis, Oregon

Ed Esty

Consultant, Chevy Chase, Maryland

Peter Kloosterman

Indiana University, Bloomington, Indiana

Cindy Langrall

Illinois State University, Normal, Illinois

Gwen Lloyd

Virginia Tech, Blacksburg, Virginia

Carolyn A. Maher

Rutgers University, New Brunswick, New Jersey

150 (America's Center) Capacity: 100

87. Developing Teacher Educators: Learning in and from Practice

RESEARCH SYMPOSIUM

Examining a professional development experience for mathematics teacher educators who used a laboratory class of prospective elementary school teachers, we discuss theories of design, identify five features used to enhance participants' ability to study teaching, and explore participants' interactions with learning opportunities. We will study a video of practice during this session.

Teresa A. McMahon

teresam@umich.edu

University of Michigan, Ann Arbor, Michigan

145 (America's Center) Capacity: 170

88. Creating and Using Representations of Instruction to Probe Hypotheses

WORK SESSION

This work session showcases a research agenda for the study of mathematics teaching and illustrates a methodology based on the creation of animated representations of possible classroom stories and their use to prompt conversations among teachers.

Pat Herbst

pgherbst@umich.edu

University of Michigan, Ann Arbor, Michigan

Daniel Chazan

University of Maryland, College Park, Maryland

Gloriana Gonzalez

University of Michigan, Ann Arbor, Michigan

Michael Weiss

University of Michigan, Ann Arbor, Michigan

Dara Sandow

University of Maryland, College Park, Maryland

Talli Nachlieli

University of Michigan, Ann Arbor, Michigan

Michael Lueke

University of Maryland, College Park, Maryland

Wendy Aaron

University of Michigan, Ann Arbor, Michigan

Discussant

David Pimm

University of Alberta, Edmonton, Canada

152 (America's Center) Capacity: 105

89. Examining Mathematics Curriculum Implementation from Multiple Perspectives

THEMATIC PRESENTATION

There are fundamental questions—of both practice and research—associated with issues of mathematics curriculum enactment and the identification of factors that affect the use of curriculum at all grade levels in diverse school contexts and classroom settings. This session brings together researchers, teachers, and administrators to examine these critical issues.

Mary Ann Huntley

huntley@math.udel.edu

University of Delaware, Newark, Delaware

Kathryn Chval

University of Missouri—Columbia, Columbia, Missouri

Douglas A. Grouws

University of Missouri—Columbia, Columbia, Missouri

James Hiebert

University of Delaware, Newark, Delaware

Janine Remillard

University of Pennsylvania, Philadelphia, Pennsylvania

142 (America's Center) Capacity: 168

90. Connecting Discourse, Teaching, and Curriculum

RESEARCH SYMPOSIUM

This symposium will explore the nature and impact of discourse practices and the challenges of implementing the discourse recommendations in the NCTM's *Principles and Standards for School Mathematics* (2000). The panel explores how discourse affords and constrains mathematical activity, the growth and impact of teachers' knowledge and practices, and forms of student participation.

Beth A. Herbel-Eisenmann

bhe@iastate.edu

Iowa State University, Ames, Iowa

Jeffrey Choppin

Rochester University, Rochester, New York

Jennifer Seymour
Iowa State University, Ames, Iowa

Megan Staples
Purdue University, West Lafayette, Indiana

Susan Empson
University of Texas at Austin, Austin, Texas

David Wagner
University of New Brunswick, Fredericton, New Brunswick

Rich Lehrer
Vanderbilt University, Nashville, Tennessee

141 (America's Center) Capacity: 168

91. Standards-Based Curricula: Linking Teachers' Use and Students' Learning

RESEARCH SYMPOSIUM

We will present findings from a multifaceted investigation of a standards-based elementary school mathematics curriculum. The investigation consists of four studies: the Implementation Study, Whole Number Study, Fraction and Proportionality Study, and Video Study. Each study documented different aspects of teachers' use of the curriculum, students' learning, and the relationship between the two.

Stacy Ann Brown
stbrown@uic.edu
University of Illinois at Chicago, Chicago, Illinois

Catherine Kelso
University of Illinois at Chicago, Chicago, Illinois

Jennifer Bay-Williams
Kansas State University, Manhattan, Kansas

Catherine Ditto
University of Illinois at Chicago, Chicago, Illinois

Realty Cauty
University of Illinois at Chicago, Chicago, Illinois

Kathleen Cramer
University of Minnesota, Minneapolis, Minnesota

Terry Wyberg
University of Minnesota, Minneapolis, Minnesota

Lucia M. Flevares
University of Illinois at Urbana-Champaign, Champaign, Illinois

143 (America's Center) Capacity: 168

10:30 a.m.–12:00 noon (continued)

92. Prospective Secondary Mathematics Teachers' Ways of Mathematical Thinking

RESEARCH SYMPOSIUM

Research teams associated with the Mid-Atlantic Center for Mathematics Teaching and Learning have been investigating the mathematical (and statistical) understandings of prospective secondary school mathematics teachers (PSMTs). We have observed the ways that PSMTs understand mathematics. We will generate some hypotheses about characteristics of the mathematical thinking of PSMTs.

M. Kathleen Heid

mkh2@psu.edu

Pennsylvania State University, University Park, Pennsylvania

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Patrick Sullivan

Pennsylvania State University, University Park, Pennsylvania

Neil Portnoy

Stony Brook University, Long Island, New York

Patricia S. Wilson

University of Georgia, Athens, Georgia

140 (America's Center) Capacity: 140

11:05 a.m.–11:35 a.m.

93. Status and Social Networks: A New Approach to Cooperative Group Work

INDIVIDUAL PAPERS

This study applies tools from social network analysis to reconceptualize status in cooperative groups in mathematics classes. I describe the varied social networks in the classrooms in this study and explore how these networks of relationships affected students' participation in group work.

Indigo Esmonde

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University of California, Berkeley, Berkeley, California

150 (America's Center) Capacity: 100

11:40 a.m.–12:10 p.m.

94. Insight into the Motivation of Mathematics Learners through Double-Blind Experiments

INDIVIDUAL PAPERS

Do problems with counterintuitive results or from social justice paradigms create more than “traditional” problems? Double-blind experiments (No Child Left Behind’s best scientifically based research) disguised as surveys yield quantitative and qualitative insights on the motivation of mathematics learners in five sections of a university introductory statistics course. We will discuss results, interpretations, and curricular implications.

Lawrence Mark Lesser

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University of Texas at El Paso, El Paso, Texas

150 (America’s Center) Capacity: 100

1:00 p.m.–1:30 p.m.

95. Teaching the Turnarounds: Collective Responsibility for Students’ Learning

INDIVIDUAL PAPERS

I examine how teachers’ practices of collective responsibility made a difference for students who entered high school with weak mathematical preparation but who nonetheless managed to succeed in their first year of college preparatory mathematics. These turnaround students illuminate the ways in which the teachers’ practices can support students’ achievement.

Ilana S. Horn

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University of Washington, Seattle, Washington

150 (America’s Center) Capacity: 100

96. Developments in Early Number Sense

RESEARCH SYMPOSIUM

The symposium consists of three papers on key aspects of early number sense development: Two- and three-year-olds' ability to focus spontaneously on number, a case study of the critical role of verbal numbers in number development, and four- to six-years-olds' understanding of the addition-subtraction inverse principle.

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Xia Li

University of Illinois at Urbana-Champaign, Champaign, Illinois

Yingying Su

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Luisa Rosu

University of Illinois at Urbana-Champaign, Champaign, Illinois

Meng-lung Lai

University of Illinois at Urbana-Champaign, Champaign, Illinois

Alison Elizabeth Baroody

Purdue University, West Lafayette, Indiana

143 (America's Center) Capacity: 168

97. Supporting the Development of Mathematical Communication in an Urban School

WORK SESSION

Participants will examine the artifacts of practice generated by urban middle school teachers as they learned to support the interrelated development of students' mathematical understandings and their abilities to communicate mathematically. These artifacts led to the development of teaching practices that are sensitive to the literacy demands of reform-based curricula.

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Syracuse University, Syracuse, New York

Alana Castrello

Frazer School, Syracuse, New York

Ann Mullen
Frazer School, Syracuse, New York

Theresa Neddo
Frazer School, Syracuse, New York

Margaret Smith
University of Pittsburgh, Pittsburgh, Pennsylvania

151 (America's Center) Capacity: 100

98. Implementing Design-Based Research: Research That Changes Practice

WORK SESSION

The focus of this session is design-based research conducted in a course for preservice elementary school teachers. Lessons learned through the course of the project will be highlighted and the potential impact on practice will be shared. Participants will engage in discussion related to reducing barriers in conducting university-specific design-based research.

Juli K. Dixon
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University of Central Florida, Orlando, Florida

Janet B. Andreasen
University of Central Florida, Orlando, Florida

Debbie Wheeldon
University of Central Florida, Orlando, Florida

Michelle Stephan
Seminole County Public Schools, Orlando, Florida

George Roy
University of Central Florida, Orlando, Florida

152 (America's Center) Capacity: 105

99. High Achievement in Mathematics: What Does This Mean, and How Do We Realize It?

RESEARCH SYMPOSIUM

In this session we look at mathematical practices in a number of countries that are typically considered “high achieving,” including China and India. In addition to reporting on specific lessons learned from these countries, we will provide a meta-analysis of the methodologies used to conduct international comparisons.

Manya J. Raman

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Rutgers University, New Brunswick, New Jersey

Jerry Becker

Southern Illinois University, Carbondale, Illinois

Jian Wang

University of Nevada, Las Vegas, Las Vegas, Nevada

Emily Lin

University of Nevada, Las Vegas, Las Vegas, Nevada

Jinfa Cai

University of Delaware, Newark, Delaware

145 (America’s Center) Capacity: 170

100. Teacher-Interns Studying Students’ Reasoning

RESEARCH SYMPOSIUM

Teachers will report on research sessions that they facilitated and analyzed with urban sixth-grade students in an after-school mathematics program funded by NSF. Results indicate that the students displayed increasing skill in making and supporting conjectures and in sharing their reasoning with peers.

Alice S. Alston

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Rutgers University, New Brunswick, New Jersey

140 (America’s Center) Capacity: 140

101. The Development of Probabilistic Reasoning among Urban Students

RESEARCH SYMPOSIUM

This symposium links researchers investigating the development of probabilistic ideas and reasoning of urban, middle school African American and Latino students who exercise their intellectual initiative to work on hands-on experimentations and computer simulations. We discuss results that suggest how students connect empirical data and theoretical probability in the context of computer simulations.

Arthur B. Powell

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Rutgers University, Newark, New Jersey

Carolyn A. Maher

Rutgers University, New Brunswick, New Jersey

Keith Weber

Rutgers University, New Brunswick, New Jersey

Lou Pedrick

Plainfield Public Schools, Plainfield, New Jersey

John M. Francisco

Rutgers University, New Brunswick, New Jersey

Kathy Shay

Rutgers University, New Brunswick, New Jersey

Hollylynne Stohl Lee

North Carolina State University, Raleigh, North Carolina

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102. Publishing Your Research in Teacher-Friendly Articles

RESEARCH SYMPOSIUM

The editorial panels of *Teaching Children Mathematics*, *Mathematics Teaching in the Middle School*, the *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 in individual or small groups.

Joseph Zilliox

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University of Hawaii, Honolulu, Hawaii

144 (America's Center) Capacity: 126

1:00 p.m.–2:30 p.m. (continued)

103. Building Subject Matter and Learning Communities Simultaneously

RESEARCH SYMPOSIUM

We present insights from the first two years of an approach to creating communities of secondary school mathematics teachers who take the profound understanding of mathematical ideas as their core commitment. The project's theoretical grounding, design of a course on covariational reasoning and functions and of Reflection on Practice sessions are discussed.

Patrick W. Thompson

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Arizona State University, Tempe, Arizona

Marilyn P. Carlson

Arizona State University, Tempe, Arizona

Yang P. Kuang

Arizona State University, Tempe, Arizona

Nora G. Ramirez

Arizona State University, Tempe, Arizona

Frank E. Cox, III

Chandler-Gilbert Community College, Chandler, Arizona

Edward E. Coe

Scottsdale Community College, Scottsdale, Arizona

141 (America's Center) Capacity: 168

1:35 p.m.–2:05 p.m.

104. A Quantitative Approach to Analyzing the Structure of Representations

INDIVIDUAL PAPERS

The presentation will provide an analysis of the structure of teachers' representations of rational numbers from two perspectives by using a structural equation-modeling (SEM) approach. The results suggest that teachers are more cognizant of the mathematical content they are representing than the appropriateness of the mode of representation that they use

Ye Sun

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West Virginia University, Morgantown, West Virginia

Gerald Kulm

Texas A&M University, College Station, Texas

150 (America's Center) Capacity: 100

105. The Influence of Standards-Based Curricula on Questioning in the Classroom

INDIVIDUAL PAPERS

Results involving the levels of questions posed in courses taught with either a traditional text or a textbook from the Core-Plus Mathematics Project (CPMP) will be presented. Although higher levels of questions occurred more frequently in CPMP courses, the actions of one particular teacher question the impact of the textbook.

Tim Jacobbe

tjacobbe@ets.org

Clemson University, Clemson, South Carolina

150 (America's Center) Capacity: 100



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106. Pressing Practitioner Questions: Can Research Provide Answers?

RESEARCH SYMPOSIUM

This interactive session brings researchers and practitioners together to discuss how research can (and cannot) provide answers to teachers' most pressing questions. Researchers from the *JRME* Editorial Panel and NCTM's Research Committee will provide research-based answers to practical questions, such as "How do you motivate students?" Bring your questions.

Chair

Sarah T. Lubienski

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University of Illinois at Urbana-Champaign, Champaign, Illinois

Presenters

James A. Middleton

Arizona State University, Tempe, Arizona

Arthur J. Baroody

University of Illinois at Urbana-Champaign, Champaign, Illinois

Cindy Langrall

Illinois State University, Normal, Illinois

Panelists

Olive Chapman

University of Calgary, Calgary, Alberta

Tom Dick

Oregon State University, Corvallis, Oregon

Ed Esty

Consultant, Chevy Chase, Maryland

Pete Kloosterman

Indiana University, Bloomington, Indiana

Gwen Lloyd

Virginia Tech, Blacksburg, Virginia

Carolyn A. Maher

Rutgers University, New Brunswick, New Jersey

Steve Williams

Brigham Young University, Provo, Utah

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107. Meaningful Discourse in Middle School: Linking Research to Practice

RESEARCH SYMPOSIUM

Reform efforts suggest that classroom discourse situating the teacher as an orchestrator of student interactions may give students a more active role in explaining mathematics. We investigate the role rich mathematical discourse plays in middle school algebra, number, and data lessons.

Robert M. Capraro

rcapraro@coe.tamu.edu

Texas A&M University, College Station, Texas

Mary Margaret Capraro

Texas A&M University, College Station, Texas

Adam Harbaugh

University of North Carolina at Charlotte, Charlotte, North Carolina

Tamara Carter

Oklahoma City Community College, Oklahoma City, Oklahoma

Diana Piccolo

Texas A&M University, College Station, Texas

142 (America's Center) Capacity: 168



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108. Justifying Generalizations, K–5: An Examination of Teacher Moves

WORK SESSION

Presenters share examples of how elementary-level mathematics students justify general claims, and presenters and audience, together, study a case to examine what a teacher does to promote the development of proof in an elementary school classroom.

Deborah Schifter

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Education Development Center, Newton, Massachusetts

Virginia Bastable

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

Susan Jo Russell

TERC, Cambridge, Massachusetts

151 (America's Center) Capacity: 100

109. Developing Mathematical Understanding through Measurement

WORK SESSION

This work session presents research from Measure Up on the development of mathematical understandings in grades 1–4 from a measurement and algebra perspective using a theoretical framework from Davydov's, Vygotsky's, and Krutetskii's works. Audience members will have an opportunity to examine and discuss students' work from this project.

Barbara J. Dougherty

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University of Mississippi, University, Mississippi

Hannah Slovin

University of Hawaii, Honolulu, Hawaii

151 (America's Center) Capacity: 100

110. Practice into Research

THEMATIC PRESENTATION

Situating research within the context of schools and the work of practicing teachers provides a rich environment for studying the learning and teaching of mathematics. A panel will stimulate group discussion by sharing research investigating the learning of mathematics as an intentional component of field experiences in high schools.

Patricia S. Wilson

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University of Georgia, Athens, Georgia

Ginger Rhodes

University of Georgia, Athens, Georgia

Kanita Kimmons DuCloux

University of Georgia, Athens, Georgia

Janet Tomlinson

North Oconee High School, Bogart, Georgia

Frances R. Curcio

Queens College/City University of New York, Flushing, New York

Alice F. Artzt

Queens College/City University of New York, Flushing, New York

140 (America's Center) Capacity: 140

111. Clearer Pictures of Performance: Assessing Content and Process over Time

WORK SESSION

Clearer pictures of students' performance develop as students are assessed with tasks that attend to the robustness of students' understanding over time. Linkages between the mathematical interaction that transpires during instruction and student assessment responses add further clarity to students' performance. Explore tasks, student responses, and classroom practices in this session.

Mary C. Shafer

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Northern Illinois Univeristy, De Kalb, Illinois

Annette Hill

South Dade Senior High School, Homestead, Florida

152 (America's Center) Capacity: 105

112. The Impact of “Math Pathways & Pitfalls” Lessons on Mathematics Learning

RESEARCH SYMPOSIUM

This session reports findings from a cluster randomized experiment to test the effectiveness of the Math Pathways & Pitfalls lessons. The presenters will discuss the theoretical foundation for the lessons, analyze the lessons’ embedded language support, and describe an experiment that demonstrated measurable impact for second, fourth, and sixth grades.

Carne Barnett-Clarke
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WestEd, Oakland, California

Lena Licón Khisty
University of Illinois at Chicago, Chicago, Illinois

Joan I. Heller
Heller Research Associates, Oakland, California

Alma B. Ramirez
WestEd, Oakland,, California

Chair and Discussion Moderator

Mary Kay Stein
University of Pittsburgh, Pittsburgh, Pennsylvania

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113. Issues of Equity in Preservice Mathematics Teachers’ Developing Practice

RESEARCH SYMPOSIUM

Issues of equity in preservice elementary school mathematics teachers’ (PSTs’) developing practice are explored in a pair of studies examining PSTs’ observations of, and interactions with, children. The studies provide two different perspectives on PSTs’ development toward equitable practices as mathematics teachers as they make sense of children’s mathematics learning.

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Beatriz S. D’Ambrosio
Miami University, Oxford, Ohio

Gina Yoder
Indiana University–Purdue University Indianapolis, Indianapolis, Indiana

Vicki Walker
Indiana University–Purdue University Indianapolis, Indianapolis, Indiana

Rochelle Gutierrez
University of Illinois at Urbana-Champaign, Champaign, Illinois

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114. Learning through Mathematical Exploration in Open-Ended Problem Situations

RESEARCH SYMPOSIUM

This symposium investigates the connections among exploration, learning, and open-ended problem-solving situations—situations in which the solver must reformulate the problem to develop solution strategies. We do so by presenting three different studies that analyzed the students’ solution processes as they solved open-ended mathematics problems.

Jinfa Cai
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Vic Cifarelli
University of North Carolina at Charlotte, Charlotte, North Carolina

Keith Weber
Rutgers University, New Brunswick, New Jersey

Frank Lester
Indiana University, Bloomington, Indiana

142 (America’s Center) Capacity: 168

115. Connecting Families and Communities to Improve Urban Mathematics Learning

RESEARCH SYMPOSIUM

This session presents research studies sponsored by MetroMath: The Center for Mathematics in America's Cities. The four studies in this session represent different approaches taken within the center to uncover and forge connections between mathematics practices and learning opportunities outside of schools and those that take place in formal classrooms.

Janine Remillard

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University of Pennsylvania, Philadelphia, Pennsylvania

Lynda Ginsburg

Rutgers University, New Brunswick, New Jersey

Kara Jackson

University of Pennsylvania, Philadelphia, Pennsylvania

Yakov Epstein

Rutgers University, New Brunswick, New Jersey

Christine Massey

University of Pennsylvania, Philadelphia, Pennsylvania

Laurie Rubel

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

Danny B. Martin

University of Chicago, Chicago, Illinois

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