

Research Pre-session Planning Committee

NCTM Research Committee

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Announcements

Registration will be in the Pacific Foyer on the Ballroom Level at the Hilton Anaheim. All sessions are located on the Concourse Level.

A light reception will be held Monday evening following the opening session in the Pacific B at the Hilton Anaheim.

Research posters will be available for viewing and discussing with the presenters on Tuesday, April 5, 2005, 1:00 p.m.–2:30 p.m. in the Pacific Promenade at the Hilton Anaheim.

The Call for Papers for the next Research Pre-session, to be held in St. Louis, Missouri, in April 2006, will be available online May 1, 2005.

Be sure to visit the NCTM Bookstore located in Exhibit Halls A/B of the Anaheim Convention Center. It will open at 10:00 a.m. on Wednesday, April 6. Research publications available since the last annual meeting include “*Results and Interpretations of the 1990–2000 Mathematics Assessments of the National Assessment of Educational Progress*” and “*Classics in Mathematics Education Research*.”

Photo Courtesy of AOCVCB; Pelican Hills



Monday, April 4, 2005

7:00 p.m.–8:30 p.m.

1. Organizing for Advancement: Can Teacher Communities Foster Equity?

OPENING SESSION

Mathematics education researchers have begun to focus on teacher communities as a way to improve overall mathematics instruction. There is growing consensus that teachers working together can professionally develop one another and thereby better serve their students. “Lesson Study” and “Communities of Practice” have become mainstays of many large grants and teacher enhancement projects. Yet, we still understand little about how teacher communities might relate to broader equity goals. Drawing on her work in effective mathematics teacher communities in the United States and Mexico, the presenter will explore the prospects and pitfalls of placing weight on teacher communities to achieve equity.

Rochelle Gutierrez

rgutirrz@uiuc.edu

University of Illinois at Urbana-Champaign, Champaign, Illinois

C/D (PACIFIC BALLROOM)

Tuesday, April 5, 2005

9:00 a.m.–10:30 a.m.

2. Prospective Teachers’ Efforts to Develop and Justify Computation Procedures

RESEARCH SYMPOSIUM

Teacher educators are charged with preparing prospective teachers to teach mathematics as a reasoning process. In this session, we will share our analysis of data from a course designed for prospective elementary school teachers in which students worked to develop and justify reasoning procedures for whole number computation.

Theresa Grant

terry.grant@wmich.edu

Western Michigan University, Kalamazoo, Michigan

Judith M. Flowers

University of Michigan—Dearborn, Dearborn, Michigan

Jane-Jane Lo

Western Michigan University, Kalamazoo, Michigan

A/B/C (HUNTINGTON)

9:00 a.m.–10:30 a.m. (continued)

3. The Research Agenda of the Center for the Study of Mathematics Curriculum (CSMC)

THEMATIC PRESENTATION

Mathematics curriculum is a broad and important area for research. The CSMC is engaged in conducting, and stimulating others to conduct, research related to mathematics curriculum. A curricular research agenda, a discussion of some ongoing research studies, and emerging data-collection tools will be shared. Audience participation is invited.

Barbara Reys

reysb@missouri.edu

University of Missouri—Columbia, Columbia, Missouri

Chris Hirsch

Western Michigan University, Kalamazoo, Michigan

Glenda Lappan

Michigan State University, East Lansing, Michigan

Mary Ann Huntley

University of Delaware, Newark, Delaware

A (PACIFIC BALLROOM)

4. Building Professional Communities of Mathematics Teacher Developers

THEMATIC PRESENTATION

The term *community* is routinely connected to teacher learning, but what are the conceptual components and practical implications of communities that support mathematics teacher developer learning? Participate in the examination of a diverse subset of “communities” being studied within the Center for Proficiency in Teaching Mathematics.

Patricia S. Wilson

pwilson@coe.uga.edu

University of Georgia, Athens, Georgia

Tim Boerst

S. Redford Elementary School/University of Michigan, Ann Arbor, Michigan

Dennis Hembree

University of Georgia, Athens, Georgia

Rheta Rubenstein

University of Michigan—Dearborn, Dearborn, Michigan

Laurie Sleep

University of Michigan, Ann Arbor, Michigan

Catherine Brown

Indiana University, Bloomington, Indiana

B (PACIFIC BALLROOM)

5. Mentoring New Researchers: The ACCLAIM Model

RESEARCH SYMPOSIUM

This session describes a strategy beyond typical coursework to mentor Ph.D. students in conducting research in mathematics education. It addresses both instilling the necessary knowledge and engendering the desire and confidence needed to be effective researchers.

James E. Schultz
schultz@ohio.edu
Ohio University, Athens, Ohio

Craig Howley
Ohio University, Athens, Ohio

Sue Nichols
Ohio University, Athens, Ohio

Craig Green
Copper Basin High School, Copperhill, Tennessee

Ed Silver
University of Michigan, Ann Arbor, Michigan

Les Steffe
University of Georgia, Athens, Georgia

A (CALIFORNIA PAVILION)

9:00 a.m.–10:30 a.m. (continued)

6. Unpacking the Findings of an Effective Culturally Based Mathematics Curriculum

RESEARCH SYMPOSIUM

Consistent and repeated statistically significant results have shown that mathematics in a cultural context, a culturally based supplemental elementary school curriculum, has improved the mathematics performance of Alaska Native and nonative students. This session explores these results through videotape and discourse analysis through four case studies.

Jerry M. Lipka

rfjml@uaf.edu

University of Alaska Fairbanks, Fairbanks, Alaska

Barbara Adams

University of Alaska Fairbanks, Fairbanks, Alaska

Shehenaz Adam

University of Alaska Fairbanks, Fairbanks, Alaska

Melissa Kagle

University of Alaska Fairbanks, Fairbanks, Alaska

Joan Parker Webster

University of Alaska Fairbanks, Fairbanks, Alaska

Betsy Brenner

University of California, Santa Barbara, Santa Barbara, California

Peter Wiles

University of Arizona, Tucson, Arizona

Marta Civil

University of Arizona, Tucson, Arizona

Sharon Nelson Barber

WEST ED, Redwood City, California

Ursula Sexton

WEST ED, Redwood City, California

A/B (SAN SIMEON)

7. School-Based Teachers' Training Program in China

WORK SESSION

This study examined an effective approach in developing the School-Based Teachers' Training Program (SBTTP) in Chinese schools and promotes international perspectives in mathematics education. The Chinese elementary school principal and mathematics teacher head will demonstrate how to build SBTTP by showing actual mathematics teachers' training videotapes.

Zhonghe Wu

john.wu@sru.edu

Slippery Rock University, Slippery Rock, Pennsylvania

Shuhua An
California State University, Long Beach, Long Beach, California

Lin Wang
JiangSu Educational Teaching and Research Institute, Nanjing, China

Jianghua An
JiangSu TV University, Nanjing, China

Yiming Zhang
Nanjing WuLaoCun Elementary School, Nanjing, China

Jie Wei
Nanjing WuLaoCun Elementary School, Nanjing, China

A/B (PALOS VERDES)

8. Using Student Achievement Data to Support Teacher Quality Measures

WORK SESSION

This session examines a theoretical model for teacher quality using coding criteria for teacher/student interactions. These analyses provided a measure of each teacher's proficiency on each criterion. This proficiency measure was used with two forms of student achievement data to provide a measure of impact for the teacher quality measures.

Robert M. Capraro
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Texas A&M University, College Station, Texas

Mary Margaret Capraro
Texas A&M University, College Station, Texas

Adam Harbaugh
Texas A&M University, College Station, Texas

Tamara Carter
Texas A&M University, College Station, Texas

Christopher Romero
Texas A&M University, College Station, Texas

Emilie Naiser
Jane Long Middle School, Bryan Independent School District., Bryan, Texas

Stacey English
Consolidated Middle School, College Station Independent School District, College Station, Texas

A/B (AVILA)

9:00 a.m.–10:30 a.m. (continued)

9. What Works? Evidence from the GPSMP Secondary Mathematics Project

RESEARCH SYMPOSIUM

This symposium will provide empirical data about the implementation and impact of using four NSF-funded curriculum materials (CMP, Core Plus, IMP, and MiC) on students' learning for about 13,000 middle school students and 20,000 high school students from ten school districts in New Jersey and Pennsylvania.

ORGANIZER/CHAIR

Jinfa Cai
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University of Delaware, Newark, Delaware

PRESENTERS

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Research for Action, Philadelphia PA

Jinfa Cai
University of Delaware, Newark, Delaware

Linda Cooper
Villa Julie College, Maryland

Steve Kramer
La Salle University, Philadelphia, PA

Robin Marcus
University of Maryland, College Park, Maryland

Joseph Merlino
La Salle University, Philadelphia, PA

Claire Passantino
Research for Action, Philadelphia PA

Ned Wolff
Arcadia University, Grandale, PA

DISCUSSANT

Gerald Kulm
Texas A&M University, College Station, Texas

REDONDO ROOM

11:00 a.m.–12:30 p.m.

10. The Impact of a *Standards*-Based Curriculum, Mathematics in Context: Final Results

RESEARCH SYMPOSIUM

Final results of the longitudinal study of the impact of the *Standards*-based middle-school curriculum, Mathematics in Context, on student achievement are reported. Relationships between student performance and other research variables such as instruction are explored. Gains in student achievement are illustrated with particular assessment items. The accessibility of research instruments is discussed.

Mary C. Shafer
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Northern Illinois University, De Kalb, Illinois

David C. Webb
University of Wisconsin—Madison, Madison, Wisconsin

Norman L. Webb
University of Wisconsin—Madison, Madison, Wisconsin

A/B/C (HUNTINGTON)

11. School Students' Attention to Variability When Comparing Data Sets

RESEARCH SYMPOSIUM

A panel of presenter/discussants from four different research and curriculum projects on statistics, together with the audience, will share their thinking and reactions to a set of video clips of students who are reasoning on some tasks in which variability can play an important role when comparing data sets.

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

Jane Watson
University of Tasmania, Hobart, Tasmania, Australia

Cliff Konold
University of Massachusetts, Amherst, Massachusetts

Andee Rubin
TERC, Cambridge, Massachusetts

A (PACIFIC BALLROOM)

12. Assessing Teachers' Knowledge of Mathematics

RESEARCH SYMPOSIUM

This session focuses on two mathematics teacher assessments developed recently at the University of Louisville and the University of Michigan. Presenters will share purposes, descriptions, development processes, and potential uses of the assessments. Presenters will also share sample tasks and responses.

William S. Bush
bill.bush@louisville.edu
University of Louisville, Louisville, Kentucky

Maggie McGatha
University of Louisville, Louisville, Kentucky

E. Todd Brown
University of Louisville, Louisville, Kentucky

Heather Hill
University of Michigan, Ann Arbor, Michigan

Laurie Sleep
University of Michigan, Ann Arbor, Michigan

Lew Romagnano
Metropolitan State College of Denver, Denver, Colorado

B (PACIFIC BALLROOM)

11:00 a.m.–12:30 p.m. (continued)

13. Mathematics Initiative, Students of Color and the Development of Probabilistic Reasoning

RESEARCH SYMPOSIUM

This symposium brings together researchers collaborating to study the development of probabilistic thinking as students exercise their mathematics initiative. Study participants are African American and Latino learners in an urban middle school. We discuss their use of computer simulations and empirical results to make sense of chance.

Arthur B. Powell

abpowell@andromeda.rutgers.edu

Rutgers University, Newark, New Jersey

Carolyn A. Maher

Rutgers University, New Brunswick, New Jersey

Hollylynne Stohl Lee

North Carolina State University, Raleigh, North Carolina

Keith Weber

Rutgers University, New Brunswick, New Jersey

Alice Alston

Rutgers University, New Brunswick, New Jersey

John Francisco

Rutgers University, New Brunswick, New Jersey

A (CALIFORNIA PAVILION)

14. The Teacher Professional Continuum Program (TPC) of the National Science Foundation

WORK SESSION

The purpose of this workshop is twofold: (1) To give an overview of the first round of the TPC competition (2004) in both the Research Studies and the Resources for Professional Development categories, emphasizing the research designs and professional development models; and (2) to give a proposal-writing workshop to assist future principal investigators.

Monica M. Neagoy

mneagoy@nsf.gov

National Science Foundation, Arlington, Virginia

A/B (SAN SIMEON)

11:00 a.m.–11:30 a.m.

15. An In-Depth Study of Teachers Participating in the “Broken Calculator” Course

INDIVIDUAL PAPERS

We present results of an in-depth study of two elementary school mathematics teachers participating in an on-line, case study-based, multimedia professional development course. Through classroom observations, videotapes, interviews, and course discussion postings, we examine the impact of participation in the course on mathematics teaching practices and student learning.

Shari J. Metcalf

metcalf@concord.org

The Concord Consortium, Concord, Massachusetts

Ricardo Nemirovsky

TERC, Cambridge, Massachusetts

Alvaro Galvis

The Concord Consortium, Concord, Massachusetts

Tess Z. Griffin

The Concord Consortium, Concord, Massachusetts

A/B (PALOS VERDES)

11:00 a.m.–12:30 p.m.

16. The Principled Use of Classroom Artifacts in Professional Development

WORK SESSION

Though professional development often includes teachers’ work with classroom artifacts, there has been little work that articulates principles for their effective use. This session will report on the taxonomy for principled use being developed in the Turning to the Evidence project.

Lynn T. Goldsmith

lgoldsmith@edc.org

Education Development Center, Inc. (EDC), Newton, Massachusetts

Nanette Seago

WestEd, San Diego, California

Mark Driscoll

EDC, Newton, Massachusetts

Judy Mumme

WestEd, Camarillo, California

Zuzka Blasi

EDC, Newton, Massachusetts

Johannah Nikula

EDC, Netwon, Massachusetts

A/B (AVILA)

11:00 a.m.–12:30 p.m. (continued)

17. Influential Beliefs: The Effects of Parents, Teachers, and Communities

RESEARCH SYMPOSIUM

Students' attitudes and beliefs about mathematics strongly influence performance, but what issues affect them? Presenters will offer unique perspectives on the influence of parents, teachers, communities, and factors such as race and ethnicity. Indications for classroom practice are included.

Robb Sinn

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North Georgia College and State University, Dahlonega, Georgia

Elizabeth M. Jakubowski

Florida State University, Tallahassee, Florida

Dante Tawfeeq

Florida A&M University, Tallahassee, Florida

Joseph F. Kolacinski

Elmira College, Elmira, New York

Sraboni Ghosh

North Georgia College, Dahlonega, Georgia

REDONDO ROOM

12:00 noon–12:30 p.m.

18. Teachers Developing Classroom Assessment: The Impact on Students' Achievement

INDIVIDUAL PAPERS

This session presents results from an eighteen-month study in which secondary school teachers of mathematics and science were supported in developing classroom assessment skills. The teachers' practice changed radically (although slowly at first), and the performance of their students was significantly greater than other students in the same schools.

Dylan Wiliam

dylanwiliam@mac.com

ETS, Princeton, New Jersey

A/B (PALOS VERDES)

1:00 p.m.–2:30 p.m.

19. A Mentoring Session for Novice Researchers

WORK SESSION

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

James Middleton
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Arizona State University, Tempe, Arizona

A/B (SAN SIMEON)

20. Intentional Teacher Educator Preparation

THEMATIC PRESENTATION

After sharing ways three universities have prepared Ph.D. students to become teacher educators and what we have learned about the development of teacher educators as a result, we will engage in a discussion about the kinds of knowledge and experiences that will contribute to the development of effective teacher educators.

Deborah Ball, Laurie Sleep, Mark Thames, and Teresa McMahon
University of Michigan, Ann Arbor, Michigan

Denise S. Mewborn, Paola Sztajn and Andrew Tyminski
Univeristy of Georgia, Athens, Georgia

Laura R. Van Zoest, Diane Moore and Shari Stockero
Western Michigan Universtiy, Kalamazoo, Michigan

B (PACIFIC BALLROOM)

1:00 p.m.–2:30 p.m. (continued)

21. Middle School Mathematics Study of Textbooks, Teachers, and Students

RESEARCH SYMPOSIUM

We report results from a longitudinal study of the impact of Standards-based and commercially generated textbooks on more than 70 teachers and 4200 middle school students over a two-year period. Results focus on student achievement as a function of the extent of textbook coverage and teachers' use of Standards-based instructional strategies.

James E. Tarr

tarrj@missouri.edu

University of Missouri—Columbia, Columbia, Missouri

Robert Reys

University of Missouri—Columbia, Columbia, Missouri

Barbara Reys

University of Missouri—Columbia, Columbia, Missouri

Oscar Chavez

University of Missouri—Columbia, Columbia, Missouri

Brian Townsend

University of Missouri—Columbia, Columbia, Missouri

Jung-Chih Chen

University of Missouri—Columbia, Columbia, Missouri

Tom Post

University of Minnesota, Minneapolis, Minnesota

A/B (AVILA)

1:00 p.m.–1:30 p.m.

22. Students' Understanding of Differential Equations Concepts

INDIVIDUAL PAPERS

This session will present the results of a research study that probed students' understanding of two concepts in differential equations: slope fields and equilibrium solutions. The assessment of participants' abilities to solve problems involving these ideas in mathematical and real-world contexts will be discussed along with implications for teaching.

Deborah S. Upton

dupton@stonehill.edu

Stonehill College, Easton, Massachusetts

A/B (PALOS VERDES)

1:00 p.m.–2:30 p.m.

23. NSF Support for Research on STEM Teaching

INDIVIDUAL PAPERS

In its second year, the Teacher Professional Continuum (TPC) program in the Division of Elementary, Secondary, and Informal Education (ESIE) at the National Science Foundation addresses critical issues and needs regarding the recruitment, preparation, induction, retention, and lifelong development of K–12 science, technology, engineering, and mathematics (STEM) teachers. This session will discuss the current program solicitation and the emerging TPC portfolio related to mathematics teaching and learning.

Karen D. King

kking@nsf.gov

National Science Foundation, Arlington, Virginia

A (CALIFORNIA PAVILION)

24. Unexpected Findings about How Young Students Learn Algebra

THEMATIC PRESENTATION

The session gives an overview of recent, unexpected findings from the area of early algebra, exemplifying with data from the TERC Tufts Early Algebra, Early Arithmetic Project. By *findings* we mean a characteristic form of student behavior with respect to the problem-solving evolution of thinking involving mathematical generalization.

David W. Carraher

david_carraher@mac.com

TERC, Cambridge, Massachusetts

Analucia Dias Schliemann

Tufts University, Medford, Massachusetts

Mara Martinez

Tufts University, Medford, Massachusetts

Darrell Earnest

TERC, Cambridge, Massachusetts

Barbara M. Brizuela

Tufts University, Medford, Massachusetts

Gerard Vergnaud

University of Paris, Paris, France

Judah L. Schwartz

Tufts University, Medford, Massachusetts

Patrick W. Thompson

Vanderbilt University, Nashville, Tennessee

A (PACIFIC BALLROOM)



Photo Courtesy of AOCVCB; Gateway Monument

Poster Sessions

Tuesday, April 5, 2005

1:00 p.m.–2:30 p.m.

PACIFIC PROMENADE

25. High School Mathematics Teachers' Beliefs about Teaching and Learning Geometry

POSTER SESSION

This poster focuses on my journey through my doctoral research: investigating high school mathematics teachers' beliefs about teaching and learning geometry. The poster will contain (a) the theoretical framework for my research, (b) the pilot and revised questionnaires and an analysis of the results, (c) questions and responses from the pilot interviews, and (d) the next step.

Brenda Strassfeld

bs49@nyu.edu

New York University, New York, New York

26. Teaching and Learning Fraction Multiplication Using Drawn Representations

POSTER SESSION

We present a coordinated analysis of teacher and student cognition in one sixth-grade classroom that used standards-based materials to teach fraction multiplication. The analysis focused on the teacher's and students' ability to coordinate three levels of units and to use the distributive property when using number line and area models.

Andrew Izsak

izsak@coe.uga.edu

University of Georgia, Athens, Georgia

Chandra Orrill

University of Georgia, Athens, Georgia

Zelha Tunc-Pekkan

University of Georgia, Athens, Georgia

Poster Sessions

1:00 p.m.–2:30 p.m. (continued)

27. Factors Influencing Students' Algebraic Generalization Strategies

POSTER SESSION

In this session, we illuminate the complex factors affecting fifth-grade students' algebraic reasoning. A theoretical model for examining the factors (task, social, and cognitive) that influence changes in students' strategies will be discussed. Examples will be provided to illustrate the interactions among these factors.

John K. Lannin

LanninJ@missouri.edu

University of Missouri—Columbia, Columbia, Missouri

Brian E. Townsend

University of Missouri—Columbia, Columbia, Missouri

Shannon Dingman

University of Missouri—Columbia, Columbia, Missouri

David D. Barker

University of Missouri—Columbia, Columbia, Missouri

28. Developing Mathematical Communicative Competence in Hispanic L2 Students

POSTER SESSION

This paper will present findings from a longitudinal case study of a group of Hispanic bilingual third-grade students developing mathematical communicative competence in their second language, English. Students were observed in a classroom that was implementing Cognitively Guided Mathematics Instruction, a communicatively demanding learning environment.

Desiree M. Olivas

godsdesiree@earthlink.net

Walden University and Santa Ana Unified School District, Santa Ana, California

29. A Pilot Study on the Use of The Number Crew in Kindergarten

POSTER SESSION

A one-year pilot study on The Number Crew, a multimedia K–1 mathematics learning system, was conducted to measure its effectiveness in the teaching of mathematics in six kindergarten classrooms. Results for student mastery of mathematics skills were compared between students using The Number Crew and those using other curricula.

Nancy Scammacca

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Research Solutions, Austin, Texas

30. What Do Teachers Say about Professional Development?

POSTER SESSION

The purpose of this research is to learn about the “wants” of the teachers regarding professional learning rather than what traditionally the authorities consider the “needs” of the teachers. This research sought to answer a multitude of questions, including this one: Which activities would teachers like to include in their professional learning plan?

Roya Salehi
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Kaplan K12 Learning Services, Camden, New Jersey

31. Examining Mathematics Anxiety and Teaching Efficacy of Preservice Teachers

POSTER SESSION

The purpose of this study was to examine the relationship between mathematics anxiety and mathematics teacher efficacy of elementary school preservice teachers. This relationship was a significant, moderately negative one ($r = -.440, p < .05$). Past experiences with mathematics, mathematics teaching confidence, and mathematics teaching strategies were associated with mathematics anxiety.

Susan Lee Swars
sswars@gsu.edu
Georgia State University, Atlanta, Georgia

32. Exploring Empirical Experiences and Probabilistic Intuitions

POSTER SESSION

This presentation will consider a study that explored participants’ intuitions regarding probability. The results suggest that empirical experiences with probabilistic situations often lead to incorrect interpretations when these experiences occur in the absence of instruction on the theory of probability. Implications for teaching and research will be considered.

Robert J. Quinn
quinn@unr.edu
University of Nevada, Reno, Reno, Nevada

33. The Equity Principle: Teachers’ Evolving Conceptions of Equity

POSTER SESSION

The Diversity in Mathematics Education Center is an NSF-funded collaboration among the University of Wisconsin—Madison, the University of California, Los Angeles, and the University of California, Berkeley. The University of Wisconsin—Madison program and the local school district joined in an effort to expand understandings of equity and the mathematics achievement gap. Teachers’ evolving conceptions of equity that were developed through their participation in this partnership are presented.

Tonya Gau Bartell
trgau@wisc.edu
University of Wisconsin—Madison, Madison, Wisconsin

Poster Sessions

1:00 p.m.–2:30 p.m. (continued)

34. Developing Pedagogical Content Knowledge for Learning Mathematics Online

POSTER SESSION

Despite student demand, most universities offer very few mathematically oriented classes online. This poster session will present the findings from three studies (two completed, one ongoing) that focus on how online courses can support mathematical discourse and, ultimately, conceptual learning.

Janet Bowers

JBowers@math.sdsu.edu

San Diego State University, San Diego, California

35. A Middle-Level Math Model for Out-of-Field Teachers: Developing Knowledge

POSTER SESSION

This session describes a project funded through NSF to develop a middle-level mathematics program designed for teachers hired to teach out-of-field. The program consists of eight courses specifically designed to provide middle-level content and content-specific pedagogy for this audience. The project involved faculty from colleges and schools.

Linda Sue Hutchison

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University of Wyoming, Laramie, Wyoming

Judith Z. Ellsworth

University of Wyoming, Laramie, Wyoming

36. Teachers' Knowledge of Sociocultural Factors and Mathematics Learning

POSTER SESSION

This study examines the effects of a professional development seminar that addresses issues of equity and diversity in mathematics education by developing teachers' sociocultural lens. It investigates teachers' changing perceptions of which criteria can indicate progress in children's thinking and participation in school mathematics.

Mary Foote

mfoote@wisc.edu

University of Wisconsin—Madison, Madison, Wisconsin

Marian Slaughter

University of Wisconsin—Madison, Madison, Wisconsin

Anita Wager

University of Wisconsin—Madison, Madison, Wisconsin

Thomas Loomis

University of Wisconsin—Madison, Madison, Wisconsin

37. The Mathematical Experiences of African American Middle School Students

POSTER SESSION

There is an abundance of literature documenting the academic struggles of African American students in mathematics. This phenomenology attempts to capture the essence of the mathematical experiences of African American middle school students.

Christian J. Anderson

christian_anderson_2000@yahoo.com

Morgan State University, Baltimore, Maryland

38. Teaching Styles as Affected by Middle School Mathematics Teacher Preparation

POSTER SESSION

The focus is on a study involving middle school preservice teachers that investigated a relationship between their sense of efficacy and their preferred teaching style based on a university's innovative teacher preparation program. Data-collection approaches reflected quantitative and qualitative analysis through instruments, observations, and interviews. Findings and implications will be discussed.

Colleen M. Eddy

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Baylor University, Waco, Texas

Trena L. Wilkerson

Baylor University, Waco, Texas

39. Fostering Multiple Solution Strategies: Six Teachers' Trials and Tribulations

POSTER SESSION

This project details the experiences of six middle school teachers who attempted to incorporate multiple solution strategies into their mathematics classrooms. Data were collected for each teacher over a period of two school years and were used to identify the successes and difficulties the teachers experienced.

Mary E. Pittman

mary.e.pittman@colorado.edu

University of Colorado at Boulder, Boulder, Colorado

Poster Sessions

1:00 p.m.–2:30 p.m. (continued)

40. Supports for Generalizing: Algebra Students' Reasoning with Linear Function

POSTER SESSION

This paper presents data on middle school students' generalizations while studying linear functions. Qualitative analysis of clinical interviews and teaching-experiment data led to the development of a cohesive, empirically grounded framework differentiating between types and levels of generalization. Findings revealed that focusing on emergent quantities and on justification supported more productive generalizations.

Amy B. Ellis

aellis1@education.wisc.edu

University of Wisconsin—Madison, Madison, Wisconsin

41. A Survey of Contemporary U.S. High School Geometry Courses

POSTER SESSION

Schools in one state, Connecticut, were surveyed to obtain a picture of the distribution of different approaches to teaching geometry at the high school level. Interviews with teachers and classroom observations were then conducted to obtain an understanding of how the intended curricula are actually implemented.

Timothy V. Craine

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Central Connecticut State University, New Britain, Connecticut

42. A Study of the Definitions of Quadrilaterals

POSTER SESSION

This presentation summarizes a historical analysis of the definitions of special types of quadrilaterals (rectangles, trapezoids, etc.) as found in 96 high school geometry textbooks published in the United States from 1838 until 2004 with an analysis of the mathematical and pedagogical implications of choosing different definitions for these figures.

Zalman Usiskin

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University of Chicago, Chicago, Illinois

43. Early Field Experience through Online Mentoring

POSTER SESSION

This presentation is an overview of integrating online mentoring into a mathematics course for prospective teachers, analyze data from the first semester's implementation, discuss principles for designing effective early field experiences that can be feasibly integrated into subject matter preparation programs, and outline the larger longitudinal study.

Rapti M. de Silva
rdesilva@csuchico.edu
California State University, Chico, Chico, California

44. Metamorphosis: Changes in a Teacher Working with Low-Achieving Students

POSTER SESSION

This presentation will address the changes in the beliefs and attitudes of a teacher before, during, and after teaching a low-level high school mathematics course that employed a meaningful and challenging curriculum.

Halcyon J. Foster
fosterhj@uwec.edu
University of Wisconsin—Eau Claire, Eau Claire, Wisconsin

45. Teacher Learning through Teacher Practice

POSTER SESSION

A qualitative case study of an elementary-level teacher that examines the processes of mathematical knowledge generation through participation in teacher practice will be presented. The discussion will center on the participatory practices of the teacher, the roles of the communities of practice, and the characterization of the processes of knowledge generation.

Gina Post
post_r@ed.utah.edu
University of Utah, Salt Lake City, Utah

46. Preliminary Studies Using Different Technologies in Collegiate Calculus

POSTER SESSION

Classroom activities were developed and used in first-semester college calculus courses that involved the use of TI-89s (CAS), Excel, and several Java applets. Qualitative and quantitative data were collected to understand how the activities affected the students' conceptual understanding and how they compared to students in a traditional course.

Erick B. Hofacker
UWRFMATH@aol.com
University of Wisconsin—River Falls, River Falls, Wisconsin

Pamela Katzman
University of Wisconsin—River Falls, River Falls, Wisconsin



Photo Courtesy of AOCVCB; Dana Point Harbor

1:30 p.m.–2:00 p.m.

47. Rethinking Professional Development for Elementary School Mathematics Teachers

INDIVIDUAL PAPERS

This presentation describes an interactive, collaborative professional development model for teachers of third-grade ethnically diverse students and its positive effects on teachers' knowledge, attitudes, and pedagogical practice and students' mathematics achievement.

Erica Walker

ewalker@exchange.tc.columbia.edu

Teachers College, Columbia University, New York, New York

Eleanor Armour-Thomas

Queens College, CUNY, New York, New York

Edmund W. Gordon

Teachers College, Columbia University, New York, New York

A/B (PALOS VERDES)

2:00 p.m.–2:30 p.m.

48. A Fine Line between Knowledge and Understanding

INDIVIDUAL PAPERS

An action-research study will be presented, involving students completing four years of an NCTM *Standards*-based curriculum. Work on a performance assessment was analyzed for the breadth and depth of their understanding of linearity, students' capacity to engage that knowledge, and the style used in communicating their work and their solutions.

Jerry Lege

glege@fullerton.edu

California State University, Fullerton, Fullerton, California

A/B (PALOS VERDES)

3:00 p.m.–4:30 p.m.

49. Can Patterning Support Early Algebra Learning?

THEMATIC PRESENTATION

We consider the role of patterning as a support to early algebra learning in second- and fourth-grade classrooms, using an approach that integrates geometric and numeric patterns to link ordinal pattern positions with the number of elements in that position, thus bridging the learning gap between scalar sequence and functional relation.

Joan Moss

jmosse@oise.utoronto.ca

OISE/University of Toronto, Toronto, Ontario

Susan London McNab

CTL, OISE/University of Toronto, Toronto, Ontario

Janet Eisenband

Teachers College, Columbia University, New York, New York

Gina Shillolo

York Region Board of Education, Toronto, Ontario

Samantha Barkin

Toronto District Board of Education, Toronto, Ontario

Ruth Beatty, Zoe Donoahue, and Kerry Scrimger

Institute of Child Study, OISE/University of Toronto, Toronto, Ontario

Christine Mann

Toronto District Board of Education, Toronto, Ontario

Patti MacDonald

The School at Columbia University, New York, New York

DISCUSSANTS

David Carraher

TERC, Cambridge, Massachusetts

Richard Lesh

Indiana University Bloomington, Bloomington, Indiana

Maria L. Blanton

University of Massachusetts Dartmouth, North Dartmouth, Massachusetts

A/B/C (HUNTINGTON)

50. The Institute of Education Sciences: Research and Funding Initiatives

THEMATIC PRESENTATION

This session will present an overview of the Institute of Education Sciences. Research grant programs in the areas of mathematics education and teacher quality will be described. In addition, ongoing efforts on the evaluation of the effectiveness of math interventions will be presented.

Diana I. Cordova

diana.cordova@ed.gov

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

Audrey Pendleton

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

A/B (PALOS VERDES)

51. A Practice-Based Perspective on Mathematical Knowledge for Teaching

RESEARCH SYMPOSIUM

This session will engage participants actively in (a) an exploration of the idea of “mathematical knowledge for teaching” (MKT), (b) our approaches to developing the idea of MKT, and (c) examining results of our efforts to develop items designed to measure this sort of knowledge.

Deborah Ball

dball@umich.edu

University of Michigan, Ann Arbor, Michigan

Imani Goffney

University of Michigan, Ann Arbor, Michigan

Mark Thames

University of Michigan, Ann Arbor, Michigan

Deborah Zopf

University of Michigan, Ann Arbor, Michigan

A (PACIFIC BALLROOM)

3:00 p.m.–4:30 p.m. (continued)

52. An International Look at Elementary School Pupils' Mathematical Understanding

RESEARCH SYMPOSIUM

As part of an international, longitudinal, comparative study since 1998–99, England, Ireland, Singapore, and the United States have tracked cohorts of elementary school pupils. The researchers will present a comparative analysis of their item responses across the curricular areas and will use the SPUR (Skills, Properties, Uses, and Representations) approach to classify the test items.

Noreen G. O'Loughlin

noreen.oloughlin@mic.ul.ie

Mary Immaculate College, University of Limerick, Limerick, Ireland

David Burghes

University of Exeter, Exeter, England

Berinderjeet Kaur

National Institute of Education, Singapore

Denisse Thompson

University of South Florida, Tampa, Florida

B (PACIFIC BALLROOM)

53. The Investigations Curriculum and Third-Grade Student Achievement

RESEARCH SYMPOSIUM

We present the results of the first year of data from a longitudinal and comparative evaluation study of student achievement with TERC's Investigations in Number, Data, and Space curriculum. After a study overview, we concentrate on the third-grade cohort's results from three perspectives: equity (racial/economic), gender, and curriculum implementation.

Paul E. Kehle

pkehle@indiana.edu

Indiana University, Bloomington, Indiana

Diana V. Lambdin

Indiana University, Bloomington, Indiana

N. Kathryn Essex

Indiana University, Bloomington, Indiana

Kelly K. McCormick

Indiana University, Bloomington, Indiana

Ayfer Kapusuz

Indiana University, Bloomington, Indiana

Judith Zawojewski

Illinois Institute of Technology, Chicago, Illinois

A (CALIFORNIA PAVILION)

54. The Impact of Teacher Effectiveness on Mathematics Achievement in the Middle Grades

RESEARCH SYMPOSIUM

This session will examine the use and effects of instructional quality criteria on middle-grade students' mathematics achievement. Specifically, teachers' knowledge and use of representations, questioning, and student engagement will be described and related to students' growth of understanding and achievement of concepts and skills involving fractions and algebraic thinking.

Gerald Kulm

gkulm@coe.tamu.edu

Texas A&M University, College Station, Texas

Leslie Woodard

Texas A&M University, College Station, Texas

Ye Sun

Texas A&M University, College Station, Texas

Alpaslan Sahin

Texas A&M University, College Station, Texas

Vic Willson

Texas A&M University, College Station, Texas

Vickie Taylor

Stephen F. Austin Middle School, Bryan, Texas

Kari Kirby

Stephen F. Austin Middle School, Bryan, Texas

A/B (SAN SIMEON)

3:00 p.m.–3:30 p.m.

55. Supplementation, Implementation, and Understanding: Translations in Core Plus

INDIVIDUAL PAPERS

This presentation will describe how two teachers implemented and supplemented two units within the algebra and functions strand of Core Plus, their justifications for that implementation and supplementation, and how these different teacher moves affected students' conceptual and procedural understanding of function translations.

Jon D. Davis

jon.davis@wmich.edu

Western Michigan University, Kalamazoo, Michigan

A/B (AVILA)

3:30 p.m.–4:00 p.m.

56. How Students' Beliefs and Goals Shape Their Involvement during Mathematics Class

INDIVIDUAL PAPERS

In this research report, I will discuss how the beliefs and goals of target students in two different seventh-grade Connected Mathematics Project classrooms shaped their participation during whole-class discussions. Results focus on the beliefs and goals of students who discussed mathematics at a higher level of cognitive demand.

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

A/B (AVILA)

4:00 p.m.–4:30 p.m.

57. The Role of Self-Regulation in the Creation of Generative Change

INDIVIDUAL PAPERS

Effective professional development programs help teachers enact changes in their teaching practices, but they do not provide teachers the skills necessary to continue the change process on their own. This study indicates that the self-regulation of teaching practices is an essential component in teachers' ability to generate change.

Nancy E. Schaefer
nschaefer65@aol.com
Columbus, Ohio

A/B (AVILA)

4:45 p.m.–6:00 p.m.

58. Identifying Issues to Support the Graduate Student Community

WORK SESSION

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

SIG/RME Board and NCTM Research Committee, Reston, Virginia

A/B (AVILA)

Wednesday, April 6, 2005

8:00 a.m.–8:30 a.m.

59. Teacher Leaders' Stages of Leadership Development in Mathematics and Equity

INDIVIDUAL PAPERS

This session describes a study of the evolution of teachers' roles as leaders during their participation in a three-year period of an intensive professional development program that promoted leadership in mathematics education and educational equity. Findings regarding leadership stages and teachers' conceptions of equity will be discussed.

Nancy L. O'Rode

nancyo@csun.edu

California State University, Northridge, Northridge, California

Nancy Terman

University of California, Santa Barbara, Santa Barbara, California

A/B (AVILA)

8:00 a.m.–9:30 a.m.

60. The Impact of Classroom Research on Students' and Teachers' Learning

THEMATIC PRESENTATION

Every day teachers organize their time and make the most of each minute in order to increase students' learning. Why, then, would anyone want to devote this prized instructional time to classroom research? What are the benefits of taking time to incorporate research into the academic day? This session is for educators who are interested in conducting classroom research. We will focus on the challenges and advantages as well as specifics of the research process.

Janet M. Sharp

sharp@math.montana.edu

Montana State University, Bozeman, Montana

Barbara M. Adams

Des Moines Public Schools, Des Moines, Iowa

A/B/C (HUNTINGTON)

8:00 a.m.–9:30 a.m. (continued)

61. Evaluating Curricular Effectiveness: The NRC Report

RESEARCH SYMPOSIUM

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

Jere Confrey

jconfrey@wustl.edu

Washington University in St. Louis, St. Louis, Missouri

David R. Mandel

National Research Council, Washington, D.C.

Vicki Stohl

National Research Council, Washington, D.C.

Douglas Grouws

University of Missouri-Columbia, Columbia, Missouri

Patrick W. Thompson

Vanderbilt University, Nashville, Tennessee

A (PACIFIC BALLROOM)

62. Latinos and Mathematics Learning and Teaching: What We Know and Don't Know

RESEARCH SYMPOSIUM

Several researchers from CEMELA, a newly NSF-funded Center for Learning and Teaching, will summarize past research, identify what is missing, and suggest future research agendas in mathematics teaching and learning for Latino students. Specifically, the presentations will focus on teachers, learners, and curriculum and pedagogy from a social justice approach.

Marta Civil

civil@math.arizona.edu

University of Arizona, Tucson, Arizona

Julia Aguirre

University of California, Santa Cruz, Santa Cruz, California

Richard S. Kitchen

University of New Mexico, Albuquerque, New Mexico

Virginia M. Horak

University of Arizona, Tucson, Arizona

Judit Moschkovich

University of California, Santa Cruz, Santa Cruz, California

Eric (Rico) Gutstein

University of Illinois at Chicago, Chicago, Illinois

B (PACIFIC BALLROOM)

63. Developing Procedures with Conceptual Understanding in Asian Textbooks

RESEARCH SYMPOSIUM

One often hears talk about developing conceptual understanding or procedural skill as if they were a dichotomy. Textbooks in selected Asian countries demonstrate that procedures can be developed with conceptual understanding. This symposium will report the results of the content analysis of elementary school mathematics textbooks from Korea, Japan, China, and Singapore. All demonstrate how conceptual underpinnings are developed while targeting procedures and operations.

Janice Grow-Maienza

jgrow@truman.edu

Truman State University, Kirksville, Missouri

Susan Beal

Saint Xavier University, Chicago, Missouri

Tad Watanabe

The Pennsylvania State University, University Park, Pennsylvania

Yeping Li

University of New Hampshire, Durham, New Hampshire

A (CALIFORNIA PAVILION)

64. Making the Connection: Research and Teaching in Undergraduate Mathematics

RESEARCH SYMPOSIUM

The purpose of this symposium is to reflect on past research in undergraduate mathematics education, with special emphasis on research efforts with strong connections to grades K–12. Presenters will discuss their main findings and ways in which their research was framed to connect with the needs and interests of teachers.

Chris Rasmussen

chrisraz@sciences.sdsu.edu

San Diego State University, San Diego, California

Marilyn Carlson

Arizona State University, Tempe, Arizona

Janet Bowers

San Diego State University, San Diego, California

Sally Jacobs

Scottsdale Community College, Scottsdale, Arizona

Joanne Lobato

San Diego State University, San Diego, California

Robert Speiser

Brigham Young University, Provo, Utah

B (CALIFORNIA PAVILION)

8:00 a.m.–9:00 a.m.

65. Highlights and Trends: Reflections on Research from ICME-10

RESEARCH SYMPOSIUM

A group of attendees at ICME-10 in Copenhagen, Denmark, during July 2004 focused on the international community's perspective on research in mathematics education. This session will report their observations and summaries of important ideas that were considered by major speakers or that emerged in conversations with representatives from different countries.

Gail Burrill

burrill@msu.edu

Michigan State University, East Lansing, Michigan

Beatriz S. D'Ambrosio

Indiana University at Purdue, Indianapolis, Indiana

Jean Krusi

Ames Middle School, Ames, Iowa

Vena Long

University of Tennessee, Knoxville, Tennessee

A/B (SAN SIMEON)

8:00 a.m.–9:30 a.m.

66. The Literacy Demands of Reform-Based Curricula in an Urban Middle School

WORK SESSION

Participants will examine the interdisciplinary perspectives of researchers and teachers on how teachers learn to recognize and address the literacy demands in conceptually rich, but contextually complex, curricular materials with diverse populations of urban students, many of whom are already struggling with reading and writing in school.

Helen M. Doerr

hmdoerr@syr.edu

Syracuse University, Syracuse, New York

Kelly Chandler-Olcott

Syracuse University, Syracuse, New York

Joanna O. Masingila

Syracuse University, Syracuse, New York

Carol Coles

Frazer School, Syracuse, New York

Sherry Martin

Frazer School, Syracuse, New York

Theresa Neddo

Frazer School, Syracuse, New York

A/B (PALOS VERDES)

8:30 a.m.–9:00 a.m.

67. Scaling Up Innovative Technology to a Wide Variety of Seventh-Grade Teachers

INDIVIDUAL PAPERS

The NCTM’s Technology Principle states that technology “influences the mathematics that is taught and enhances students’ learning.” We report a randomized controlled field trial that evaluates this claim. We report findings for student achievement, content depth, and teacher learning. We aim to model the effect of varying teaching practices on achievement.

Jeremy Roschelle

Jeremy.Roschelle@sri.com

SRI International, Menlo Park, California

Deborah Tatar

Virginia Tech, Blacksburg, Virginia

Jim Kaput

University of Massachusetts Dartmouth, North Dartmouth, Massachusetts

Bill Hopkins

The Dana Center, Austin, Texas

Jennifer Knudsen

SRI International, Menlo Park, California

Nicole Shechtman

SRI International, Menlo Park, California

A/B (AVILA)

9:00 a.m.–9:30 a.m.

68. Looking Inside the Classroom: Results of a National Observation Study

INDIVIDUAL PAPERS

Iris Weiss will share findings from an observational study of a nationally representative sample of mathematics lessons, arguing that the reform versus traditional dimension is not the most important one in determining the quality of instruction. She will also discuss the challenges inherent in large-scale observational studies.

Iris R. Weiss

iweiss@horizon-research.com

Horizon Research, Inc., Chapel Hill, North Carolina

A/B (AVILA)

10:00 a.m.–11:00 a.m.

69. Mathematics Education Research in Mexico: The State of the Art, 1993–2001

RESEARCH SYMPOSIUM

Results from an interdisciplinary, multiinstitutional team that reviewed and identified research studies on mathematics education in Mexico from 1993 to 2001 will be presented. This work is relevant to the preparation of researchers and others working in mathematics education in Mexico and with immigrant children from Mexico in the United States.

Patrick (Rick) Scott

pscott@nmsu.edu

New Mexico State University, Las Cruces, New Mexico

Eduardo Mancera

Iberoamerican University, Mexico City, Mexico

Alicia Avila

National Pedagogical University, Mexico City, Mexico

B (CALIFORNIA PAVILION)

10:00 a.m.–11:30 a.m.

70. Justifying Generalizations in the Elementary Grades

WORK SESSION

Presenters share examples of how elementary school mathematics students justify general claims, and presenters and audience, together, consider four ways of coming to accept such claims as true. We then discuss the knowledge and skills that teachers need to enable their students to develop their powers of mathematical reasoning.

Deborah Schifter

dschifter@edc.org

Education Development Center, Newton, Massachusetts

Virginia Bastable

SummerMath for Teachers, South Hadley, Massachusetts

Susan Jo Russell

TERC, Cambridge, Massachusetts

Traci Higgins

TERC, Cambridge, Massachusetts

A/B (SAN SIMEON)

71. Publishing Your Research in Teacher-Friendly Articles

WORK SESSION

Members of 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. We encourage you to bring specific ideas or manuscripts for discussion in individual or small groups.

A/B (AVILA)

72. Research Issues in Developing Strategic Flexibility: What and How

RESEARCH SYMPOSIUM

Strategic flexibility is the ability to formulate several approaches to a problem and choose flexibly among these approaches. Researchers from two independent projects will discuss evidence from both within and across the projects that address questions about what defines strategic flexibility in practice and how strategic flexibility is developed.

Christine Carrino Gorowara

cargoro@udel.edu

University of Delaware, Newark, Delaware

Dawn Berk

University of Delaware, Newark, Delaware

Christina Poetzl

University of Delaware, Newark, Delaware

Jon Star

Michigan State University, East Lansing, Michigan

Susan B. Taber

Rowan University, Glassboro, New Jersey

John K. Lannin

University of Missouri—Columbia, Columbia, Missouri

A (PACIFIC BALLROOM)

10:00 a.m.–11:30 a.m. (continued)

73. Closing the Gap: Interventions in Early Childhood Mathematics Education

RESEARCH SYMPOSIUM

NCTM's Equity Principle cannot be realized when some children, such as those from low-income and minority groups, start out precariously behind their more advantaged peers. We describe three intervention programs that address this serious social-educational problem, including their theoretical bases and the formative and summative research evaluating them.

Douglas H. Clements

clements@buffalo.edu

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

Julie Sarama

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

Prentice Starkey, Alice Klein, and Ann Wakely,

University of California, Berkeley, Berkeley, California

Robert J. Wright

Southern Cross University, Lismore, NSW, Australia

Sharon Griffin

Clark University, Worcester, Massachusetts

DISCUSSANTS

Karen C. Fuson

Northwestern University (emeritus), Fallbrook, California

B (PACIFIC BALLROOM)

74. Issues of Generalization in K–12 Algebra

RESEARCH SYMPOSIUM

Forming generalization is considered a central process in all students' mathematical experiences, especially in the algebra strand. The primary purpose of this symposium is to address this underresearched theme of generalization. The presentations will demonstrate that learners across different grade levels are capable of forming generalizations using different strategies.

Joanne Rossi Becker

becker@math.sjsu.edu

San Jose State University, San Jose, California

Ferdinand Rivera

San Jose State University, San Jose, California

Analucia Schliemann

Tufts University, Medford, Massachusetts

Mara Martinez

University of Massachusetts Dartmouth, North Dartmouth, Massachusetts

Barbara Dougherty

University of Hawaii, Honolulu, Hawaii

Elizabeth Warren

Australian Catholic University, Sydney, New South Wales, Australia

A (CALIFORNIA PAVILION)

75. Radical Perspectives on Mathematics Education and Global Society

RESEARCH SYMPOSIUM

International representatives of the emerging movement of critical mathematics education analyse crucial issues in the contemporary crisis of mathematics education—the responsibility to prepare citizens capable of critically evaluating the increasing mathematization of society and the ethical responsibilities of mathematics educators.

Swapna Mukhopadhyay

swapna@pdx.edu

Portland State University, Portland, Oregon

Christine Keitel

Freie University Berlin, Berlin, Germany

Ubiratan D'Ambrosio

State University of Campinas/UNICAMP (Emeritus), São Paulo, Brazil

Cyril Julie

University of the Western Cape, Bellville, South Africa

Brian Greer

San Diego State University, San Diego, California

A/B/C (HUNTINGTON)

76. Analyzing Participation in Next-Generation Classroom Networks

THEMATIC PRESENTATION

Interactive and group-focused capabilities of next-generation classroom networks are poised to become a major presence in school-based teaching and learning. Viewing learning as patterns of participation, we analyze network-supported activity in four dimensions: content, sociocultural, network-supported anonymity, and biological, where analytical tools of mathematical biology are highlighted.

Walter M. Stroup

wstroup@mail.utexas.edu

University of Texas at Austin, Austin, Texas

Nancy M. Ares

University of Rochester, Rochester, New York

Sarah M. Davis

University of Texas at Austin, Austin, Texas

Thomas Hills

University of Texas at Austin, Austin, Texas

James J. Kaput

University of Massachusetts Dartmouth, North Dartmouth, Massachusetts

A/B (PALOS VERDES)

1:30 p.m.–2:30 p.m.

77. Perspectives to Inform and Enrich Scholarship on Gender and Mathematics

RESEARCH SYMPOSIUM

In a world of increased globalization and technological advances, how should we conceptualize the “problem” of gender and mathematics? Toward an answer, these presenters discuss topics given little attention to date in the scholarship on gender and mathematics in the United States: technology, globalization, and gender as “problems” in mathematics education.

Diana B. Erchick

erchick.1@osu.edu

Ohio State University, Columbus, Ohio

Olof Bjorg Steinhorsdottir

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

Suzanne K. Damarin

Ohio State University, Columbus, Ohio

Peter Appelbaum

Arcadia University, Glenside, Pennsylvania

B (CALIFORNIA PAVILION)

1:30 p.m.–3:00 p.m.

78. Creating Data, Modeling Worlds, Changing Practices

RESEARCH SYMPOSIUM

We share a model of collaborative research, and preliminary results from it, that addresses mathematics and science reform at an inner-city middle school through the collaboration of an interdisciplinary team of researchers. It addresses curriculum and instructional reform, teachers’ professional development, the assessment of students’ learning, and classroom social climate.

Patrick W. Thompson

Pat.Thompson@Vanderbilt.edu

Vanderbilt University, Nashville, Tennessee

Deb Lucas

Vanderbilt University, Nashville, Tennessee

A (PACIFIC BALLROOM)

79. The Routes to Publishing in *JRME*

THEMATIC PRESENTATION

This session will focus on the different kinds of manuscripts published by the *Journal for Research in Mathematics Education*, including research reports, book reviews, monographs, and research commentaries. Editors of these sections will

share details about the review and publication process and will be available to answer questions.

Steven R. Williams
williams@mathed.byu.edu
Brigham Young University, Provo, Utah

Jeremy Kilpatrick
University of Georgia, Athens, Georgia

Norma Presmeg
Illinois State University, Normal, Illinois

Neil Pateman
University of Hawaii, Honolulu, Hawaii

B (PACIFIC BALLROOM)

80. How Are *Standards*-Based Elementary School Mathematics Curricula Used in Schools?

RESEARCH SYMPOSIUM

We will share data from two studies designed to investigate how Math Trailblazers, a K–5 *Standards*-based mathematics curriculum, is used in schools. Questions to be addressed include the following: How is the curriculum enacted? Do teachers' classroom decisions foster the students' understandings envisioned within the *Standards*?

Stacy A. Brown
stbrown@uic.edu
Institute for Mathematics and Science Education, University of Illinois at Chicago, Chicago, Illinois

Catherine Randall Kelso
Institute for Mathematics and Science Education, University of Illinois at Chicago, Chicago, Illinois

Jennifer M. Bay-Williams
Kansas State University, Manhattan, Kansas

Reality S. Canty
University of Illinois at Chicago, Chicago, Illinois

Catherine Ditto
Institute for Mathematics and Science Education, University of Illinois at Chicago and Chicago Public Schools, Chicago, Illinois

A (CALIFORNIA PAVILION)

1:30 p.m.–3:00 p.m. (continued)

81. How Curriculum Influences Student Learning

RESEARCH SYMPOSIUM

This symposium will present (a) a conceptual framework for the processes by which curricula influence students' learning and (b) an overview of the extant research on the influence of curricula on students' learning. The presenters are authors of the curriculum chapter in the forthcoming *Handbook of Research on Mathematics Teaching and Learning*.

Mary Kay Stein

mkstein@pitt.edu

LRDC, University of Pittsburgh, Pittsburgh, Pennsylvania

Janine Remillard

University of Pennsylvania, Philadelphia, Pennsylvania

Margaret S. Smith

University of Pittsburgh, Pittsburgh, Pennsylvania

James Hiebert

University of Delaware, Newark, Delaware

Jere Confrey

Washington University, St. Louis, Missouri

Iris Weiss

Horizon Research, Inc., Chapel Hill, North Carolina

A/B/C (HUNTINGTON)

82. Capturing and Analyzing Mathematical Problem-Solving Behavior

WORK SESSION

This presentation will introduce the Multidimensional Problem Solving Framework. The MPS framework captures the phases of problem solving and the different problem-solving attributes and describes their roles during each of the problem-solving phases. Participants will review and analyze transcripts of problem-solving sessions involving both mathematicians and students.

Irene Bloom

irene.bloom@asu.edu

Arizona State University Center for Research on Education in Science, Mathematics, Engineering, and Technology, Tempe, Arizona

Marilyn P. Carlson

Arizona State University Center for Research on Education in Science, Mathematics, Engineering, and Technology, Tempe, Arizona

A/B (SAN SIMEON)

83. Teacher-Researchers' Models of Students' Constructions of Rational Number

RESEARCH SYMPOSIUM

The role of teacher as researcher is illustrated in a pair of studies investigating students' constructions of rational number. Both studies illustrate how teacher-researchers use evidence to build models of students' constructions of rational number. Children's constructions of fractions and preservice elementary teachers' constructions of decimals will be discussed.

Signe E. Kastberg
skastber@iupui.edu

Indiana University–Purdue University Indianapolis, Indianapolis, Indiana

Beatriz D'Ambrosio

Indiana University–Purdue University Indianapolis, Indianapolis, Indiana

Anderson Norton

Indiana University, Bloomington, Indiana

John Olive

University of Georgia, Athens, Georgia

A/B (PALOS VERDES)

1:30 p.m.–2:00 p.m.

84. Combining Lesson Study and Microteaching to Prepare Prospective Teachers

INDIVIDUAL PAPERS

Microteaching Lesson Study (MLS) was investigated during two initial courses on learning to teach mathematics. A qualitative analysis of several data sources was conducted to investigate the learning and perceptions of thirty-six participants. The prospective teachers found MLS to be very beneficial. It facilitated their implementation of reform-oriented teaching.

Maria L. Fernandez
fernande@coe.fsu.edu

Florida State University, Tallahassee, Florida

A/B (AVILA)

2:00 p.m.–2:30 p.m.

85. Investigating California’s High-Demand First-Grade Basic Facts Standard

INDIVIDUAL PAPERS

California has an accelerated standard that first graders will memorize the addition and subtraction facts to 20. This session will report the findings of a 2003–04 study that used one-on-one student assessment data and teacher classroom practice data from nine diverse schools to conduct a quality review of this high-demand standard.

Valerie J. Henry
vhenry@uci.edu
University of California, Irvine, Irvine, California

A/B (AVILA)

2:30 p.m.–3:00 p.m.

86. Learning by Reflecting: Developing “Professional Vision” in Video-Based Professional Development

INDIVIDUAL PAPERS

This study examines how participants learn about teaching through joint reflection on video records of teaching in an equity-focused university/school professional development collaborative. The analysis focuses on the development of participants’ “professional vision”—ways of “seeing” and making meaning of professionally relevant objects and events—through reflective practice.

Ann Ryu
annryu@socrates.berkeley.edu
University of California, Berkeley, Berkeley, California

A/B (AVILA)

3:30 p.m.–4:45 p.m.

87. The Relationship between Research and Practice: Mapping Out the Terrain

THEMATIC PRESENTATION

This session will highlight features of research practice endeavors and make salient the diverse ways that research and practice can inform one another. Examples of different types of research practice relationships intended to improve educational practice as well as our basic understanding of it will be discussed.

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C/D (PACIFIC BALLROOM)



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