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Announcements

Registration and all sessions are located on Harrah's second floor.

Informal meetings can be held Saturday, April 20 in Parlor D from 8:00 a.m. to 3:30 p.m. and in Parlor E from 8:00 a.m. to 10:45 a.m. and from

12:30 p.m. to 3:30 p.m. Meetings can also be held on Sunday, April 21, in Parlor D from 8:00 a.m. to 3:15 p.m.

Teacher research posters can be seen in Parlor E.

The Call for Papers for the next Research Pre-session, to be held in San Antonio, Texas, in April 2003, will be available at the registration table.

A reception will be held Friday evening following the opening session.

Friday, April 19, 2002, 7:00 p.m. (Welcome)

ORGANIZERS

Virginia Stimpson, University of Washington, Seattle, Washington
Chair, NCTM Research Advisory Committee
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Linda Ruiz Davenport, Boston Public Schools, Boston, Massachusetts
Cochair, SIG/RME of AERA
ldavenport@boston.k12.ma.us

7:30 p.m. (Opening Address)

Does Lesson Study Have a Future in the United States?

SPEAKER

Catherine Lewis, Mills College, Oakland, California
clewis@mills.edu

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

LAKE TAHOE, HARRAH’S

(RECEPTION FOLLOWS)

Saturday, April 20, 2002,
8:00 a.m.—10:30 a.m. (Concurrent Sessions)

A Lesson Study Initiative Aimed at Exploring How to Promote Critical Thinking: Findings, Process, and Reflections

ORGANIZER/PRESENTER/PRESIDER

Clea Fernandez, Teachers College, Columbia University, New York, New York
cf170@columbia.edu

PRESENTERS

Barbrina Ertle, Teachers College, Columbia University, New York, New York

Sonal Chokshi, Teachers College, Columbia University, New York, New York

Phyllis Tam, Community School District 2, New York, New York

Courtney Allison, Community School District 2, New York, New York

Jason Appel, Community School District 2, New York, New York

Cheryl Schafer, Community School District 2, New York, New York

DISCUSSANT

Frances R. Curcio, Queens College of the City University of New York, Flushing, New York

Four teachers and their university partners will share preliminary findings from a lesson study effort aimed at exploring how to promote critical thinking in mathematics classrooms. Information about the process and reflections about this form of teacher research will also be provided.

LAKE TAHOE, HARRAH'S

A Research Symposium on Issues Related to African American Students' Mathematics Achievement: Where Do We Go from Here?

ORGANIZER/PRESENTER/MODERATOR

Marilyn E. Strutchens, Auburn University, Auburn, Alabama
strutme@auburn.edu

PRESENTERS

Dorothy Y. White, University of Georgia, Athens, Georgia
Carol Malloy, University of North Carolina at Chapel Hill, North Carolina
Danny B. Martin, Contra Costa College, San Pablo, California

REACTOR AND MODERATOR

Martin L. Johnson, University of Maryland, College Park, Maryland

This symposium will focus on research related to African American students' mathematics achievement. Presenters will share their research and provide questions for further discussion. An analysis of what we have learned and what we must continue to study will also be rendered.

LAUGHLIN, HARRAH'S

Interpretations of Mathematical Literacy

ORGANIZERS/PRESIDERS

Brian Greer, San Diego State University/CRMSE, San Diego, California
ggreer@mail.sdsu.edu

Swapna Mukhopadhyay, San Diego State University/CRMSE, San Diego, California
smukhopa@mail.sdsu.edu

PRESENTERS

Michael Cole, University of California, San Diego, San Diego, California
Anna Sfard, University of Haifa, Haifa, Israel
Christine Keitel, Freie Universität Berlin, Berlin, Germany
John Volmink, University of Natal, Durban, Republic of South Africa
Ubiratan D'Ambrosio, Professor Emeritus, State University of Campinas, São Paulo, Brazil

DISCUSSANT

Paul Cobb, Vanderbilt University, Nashville, Tennessee

Through a variety of interpretations of "mathematical literacy," fundamental questions are raised about what mathematics education should be for and about its social, political, and ethical aspects.

SILVER, HARRAH'S

Gesture in Mathematical Thinking, Learning, and Teaching

ORGANIZER/PRESIDER/PRESENTER

Laurie D. Edwards, Saint Mary's College of California, Moraga, California
ledwards@stmarys-ca.edu

PRESENTER/DISCUSSANT

Rafael Núñez, University of Fribourg, Switzerland
University of California, San Diego, San Diego, California

DISCUSSANT

Norma Presmeg, Illinois State University, Normal, Illinois

This session will consider the role of gesture in mathematical thought, learning, and communication, drawing from recent theory and research in cognitive science. Participants will collaborate in applying this perspective to videotaped data of mathematics students.

PARLOR C, HARRAH'S

Investigations of the Major Conceptual Strands of First-Semester Calculus: The Role of Theory in Research and Practice

ORGANIZER/PRESIDER/PRESENTER

Marilyn Carlson, Arizona State University, Tempe, Arizona
marilyn.carlson@asu.edu

PRESENTERS

Eric Hsu, San Francisco State University, San Francisco, California
Mike Oehrtman, The University of Texas at Austin, Austin, Texas

An interactive report on three studies of learning of first-semester calculus is presented in this symposium. The focus is on students' covariational reasoning (coordinating changes in related quantities) and the spontaneous use of metaphors for the production of knowledge and the building of conceptual connectivity.

PARLOR B, HARRAH'S

Students' Understanding of First-Order Differential Equations

ORGANIZER/POSTER PRESENTER

John E. Donovan II, State University of New York at Buffalo, Buffalo, New York
jed3@buffalo.edu

Preliminary results will be presented from a quantitative investigation of ($n = 6$) students' understanding of the multiple representations of first-order differential equations and their solutions in a reform classroom setting.

PARLOR F, HARRAH'S

9:00 a.m.—10:30 a.m.

NSF Investments in Mathematics Education Research

ORGANIZERS/SPEAKERS

Eric Hamilton, Interim Division Director, Research Evaluation and Communication, National Science Foundation, Arlington, Virginia
ehamilton@nsf.gov

Finbarr (Barry) Sloane, Program Director, Research Evaluation and Communication, National Science Foundation, Arlington, Virginia; Senior Scientist, Hewitt Associates, LLC, Lincolnshire, Illinois
fsloane@nsf.gov

DISCUSSANT

Joan Ferrini-Mundy, Michigan State University, East Lansing, Michigan

NSF's new programs, Research on Learning and Education (ROLE) and the Inter-Agency Education Research Initiative (IERI), have recently funded their second (ROLE) and third (IERI) sets of education research projects. Moreover, the Mathematics and Science Partnership (MSP program) has yet to receive submissions. This session describes the current portfolio and seeks to stimulate strong mathematics education proposals to them and to gather advice from researchers on a longer-term agenda.

COPPER, HARRAH'S

11:00 a.m.—12:30 p.m. (Concurrent Sessions)

Reforming K–5 Mathematics in an Urban District: What We’ve Learned in Baltimore

ORGANIZER/PRESIDER/PRESENTER

Patricia F. Campbell, University of Maryland, College Park, Maryland
pc2@umail.umd.edu

PRESENTERS

Andrea R. Bowden, Baltimore City Public School System, Baltimore, Maryland

Donnette T. Dais, University of Maryland, College Park, Maryland

Steven L. Kramer, University of Maryland, College Park, Maryland

The University of Maryland and the Baltimore City Public School System (BCPSS) have been engaged in a systemic effort addressing the K–5 mathematics curriculum, instruction, and assessment. This session will characterize that collaboration from the perspectives of the school district supervisor and the university mathematics educator and will also examine student achievement in mathematics in BCPSS.

LAKE TAHOE, HARRAH’S

Design Principles as an Impetus for Teacher Change and Student Learning

ORGANIZER/PRESENTER

Kay McClain, Vanderbilt University, Nashville, Tennessee
kay.mcclain@vanderbilt.edu

PRESENTERS

David Carraher, TERC, Cambridge, Massachusetts

Analúcia Schlieman, Tufts University, Medford, Massachusetts

Jim Kaput, University of Massachusetts Dartmouth, North Dartmouth, Massachusetts

Maria Blanton, University of Massachusetts Dartmouth, North Dartmouth, Massachusetts

DISCUSSANTS

Ricardo Nemirovsky, TERC, Cambridge, Massachusetts

Jesse Solomon, City on a Hill, Boston, Massachusetts

This symposium will provide results from research efforts at three sites where design principles guide classroom-based efforts aimed at improving students’ mathematical understandings. The presenters’ foci range from principles for task development to those for classroom practice.

LAUGHLIN, HARRAH’S

Students' Experiences Moving between "Traditional" and "Reform" Curricula: What Are the Implications for K–16 Mathematics Education?

ORGANIZER/PRESENTER

Jack Smith, Michigan State University, East Lansing, Michigan
jsmith@msu.edu

PRESENTER

Jon Star, Michigan State University, East Lansing, Michigan

DISCUSSANTS

Jo Boaler, Stanford University, Stanford, California
Sarah Thuele Lubienski, Iowa State University, Ames, Iowa

This thematic presentation provides data and analysis and provokes discussion on how students' experience of current "reform" and "traditional" mathematics curricula might influence the goals, content, and pedagogy of K–16 mathematics education.

SILVER, HARRAH'S

What Are Teacher-Researchers Learning about Their Practice?

ARRANGED BY

NCTM Research Advisory Committee, Virginia Stimpson, Chair,
University of Washington, Seattle, Washington
ginis@u.washington.edu

PRESENTERS

Carmelita Santiago, Jean Childs Young Middle School, Atlanta, Georgia
Christine Thomas, Georgia State University, MIST, Decatur, Georgia
K. Ann Renninger, Swarthmore College, Swarthmore, Pennsylvania
Art Mabbott, Seattle School District, Seattle, Washington
Annie Fetter, The Math Forum, Swarthmore, Pennsylvania
Beatriz D'Ambrosio, IUPUI–School of Education, Indianapolis, Indiana
Vicki Walker, IUPUI–School of Education, Indianapolis, Indiana

Three teams of collaborators who participated in the NCTM Working Conference on Teacher Research in Mathematics Education will share their questions, a sample of their data, inferences drawn from these data, and how this work has affected their practice. The audience will be asked to explore issues that arise when research is integrated into practice.

COPPER, HARRAH'S

MeasureUp: Elementary Mathematics Curriculum Development

ORGANIZER/PRESENTER

Barbara J. Dougherty, University of Hawaii at Manoa, Honolulu, Hawaii
bdougher@hawaii.edu

PRESENTER

Zaur Berkaliev, Best Practices in Education, Bloomington, Indiana

Participants in this session will view mathematical tasks and samples of students' work as part of an elementary school curriculum development project, MeasureUp. Research protocols and videotapes of classes in grade 1 will illustrate the curriculum and its development process.

PARLOR B, HARRAH'S

Writing about Research for a General Practitioner

ORGANIZER/PANELIST

Kathy M. C. Ivey, *JRME* Editorial Panel Chair, Western Carolina University, Cullowhee, North Carolina
kivey@wpoff.wcu.edu

PANELISTS

Alfinio Flores, *TCM* Editorial Panel Chair, Arizona State University, Tempe, Arizona

Denisse R. Thompson, *MTMS* Editorial Panel Chair, University of South Florida, Tampa, Florida

Rose Mary Zbiek, *MT* Editorial Chair, University of Iowa, Iowa City, Iowa

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

PARLOR C, HARRAH'S

Lesson Study, American Style

ORGANIZER/POSTER PRESENTER

Wanda Guzman, MathStar New Mexico; New Mexico State University,
Las Cruces, New Mexico
wguzman@nmsu.edu

DISCUSSANTS

Lisa Snow, MathStar New Mexico; New Mexico State University, Las
Cruces, New Mexico
Karin Wiburg, MathStar New Mexico and New Mexico State University,
Las Cruces, New Mexico

This poster session will highlight the MathStar project in which teachers design and research improvements in their mathematics teaching. It will feature multimedia case studies of four groups of New Mexico teachers who have adapted the Japanese lesson study model.

PARLOR E, HARRAH'S

A Visual Analysis of Knowledge Networks: Students Discuss Calculus

ORGANIZER/POSTER PRESENTER

Eric Hsu, San Francisco State University, San Francisco, California
erichsu@math.sfsu.edu

In this poster session, findings will be shared from a study on the conceptual development of calculus students emphasizing computer-generated visual diagrams and analyses of students' skill with mathematical ideas and the strength of the connectedness.

PARLOR F, HARRAH'S

12:45 p.m.–1:45 p.m. (Lunchtime Discussion)

Networking and Informal Conversations

ORGANIZERS

Frank Lester, Indiana University Bloomington, Bloomington, Indiana
lester@indiana.edu

Douglas Grouws, University of Iowa, Iowa City, Iowa
douglas-grouws@uiowa.edu

This session is being offered to allow researchers with similar interests time to discuss their work, to find out what others are doing in a particular area, and to identify individuals who may be interested in developing a “working group” around specific research interests. It is an opportunity to begin a network to exchange mutually supportive research ideas and to encourage continued discussion and generation of research in a particular area. Pre-session participants will be given the opportunity to propose a working group area of interest. These will be posted or announced, and interested people are encouraged to attend. By the end of the session, those deciding to form a working group will need to provide a working group name, select a group facilitator, and submit a roster of names and contact information.

PARLOR D, HARRAH’S

2:00 p.m.—3:30 p.m. (Concurrent Sessions)

Professional Development and Effective Teaching: Improving Students’ Mathematical Learning in the Early Years of School through Improving Teachers’ Knowledge

ORGANIZER/PRESENTER/PRESIDER

Marj Horne, Australian Catholic University, Saint Patrick’s Campus,
Fitzroy, Victoria, Australia
m.horne@patrick.acu.edu.au

PRESENTERS

Doug Clarke, Australian Catholic University, St. Patrick’s Campus,
Fitzroy, Victoria, Australia

Andrea McDonough, Australian Catholic University, St. Patrick’s
Campus, Fitzroy, Victoria, Australia

Jill Cheeseman, Australian Catholic University, St. Patrick’s Campus,
Victoria, Fitzroy, Australia

DISCUSSANT

Patricia Wilson, University of Georgia, Athens, Georgia

The first three years of school have been the focus of a large-scale professional development research project over a three-year period. This session reports the work from the perspectives of professional development and the identification of effective teaching.

LAUGHLIN, HARRAH’S

Teaching Experiment Methodologies: What Counts as Evidence?

ORGANIZERS/PRESENTERS

Cynthia W. Langrall, Illinois State University, Normal, Illinois
langrall@ilstu.edu

Edward S. Mooney, Illinois State University, Normal, Illinois
mooney@ilstu.edu

PRESENTERS

John Lannin, University of Missouri Columbia—Columbia, Missouri

Jeffrey Barrett, Illinois State University, Normal, Illinois

DISCUSSANTS

Graham Jones, Illinois State University, Normal, Illinois

Pat Thompson, Peabody College, Vanderbilt University, Nashville, Tennessee

This session will engage participants in a discussion of the issues surrounding the use of teaching-experiment methodologies in mathematics education research. Presentations will focus on the evolution of, and problems arising from, teaching experiments conducted at Illinois State University.

PARLOR B, HARRAH'S

A Case Study of Two Schools Undergoing Systemic Reform in Mathematics

ORGANIZER/PRESENTER

David Pagni, California State University, Fullerton, Fullerton, California
dpagni@fullerton.edu

Ruth Von Blum, Students Using Mathematics Successfully (SUMS), Los Angeles, California
rvbconsult@mediaone.net

Two schools, one elementary and one middle, undergoing systemic change in mathematics through teacher professional development, will be examined with respect to the effects of change on staff, students, and administrators. In particular, we will look at how mathematics teaching and learning and their support are affected by the overall project, Students Using Mathematics Successfully (SUMS), teacher interviews, administrator interviews, and artifact collection results will be discussed.

PARLOR C, HARRAH'S

District-Level Lesson Study: How Do Japanese Teachers Improve Their Teaching of Elementary Mathematics?

ORGANIZER/POSTER PRESENTER

Akihiko Takahashi, University of Illinois at Urbana-Champaign,
Champaign, Illinois
takahash@uiuc.edu

POSTER PRESENTER

Aki Murata, Northwestern University, Evanston, Illinois

This study will address the issues concerning district-level lesson study in Japan and how it helps Japanese teachers improve their teaching of elementary mathematics. It will also discuss the implication to U.S. education in changing teaching practices.

PARLOR F, HARRAH'S

2:00 p.m.—4:30 p.m. (Concurrent Sessions)

Culture, Language, and Power within Mathematics Classrooms and Beyond: New Lenses for Examining Equity in Mathematics Education

ORGANIZER/PRESENTER

Sarah Thuele Lubienski, Iowa State University, Ames, Iowa
stl@iastate.edu

PRESENTERS

Jo Boaler, Stanford University, Stanford, California

Paul Cobb, Peabody College, Vanderbilt University, Nashville, Tennessee

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

Judit Moschkovich, University of California, Santa Cruz, Santa
Cruz, California

MODERATOR

Deborah Ball, University of Michigan, Ann Arbor, Michigan

In this interactive symposium, presenters will critique existing treatments of equity in mathematics education and offer new conceptualizations that include attention to how ethnicity, class, gender, culture, and power play out in mathematics classrooms. After individual presentations, small- and large-group discussions will focus on ways in which the perspectives presented can support the promotion of equity in mathematics education.

LAKE TAHOE, HARRAH'S

Semiotic Perspectives in Mathematics Education Research

ORGANIZER/PRESENTER

Adalira Sáenz-Ludlow, University of North Carolina at Charlotte,
Charlotte, North Carolina
sae@newmail.uncc.edu

PRESENTERS

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

Norma Presmeg, Illinois State University, Normal, Illinois

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

DISCUSSANT

Erna Yackel, Purdue University Calumet, Hammond, Indiana

Using different but complementary semiotic perspectives, each presenter will analyze different issues of the learning of mathematics in different educational settings and learning situations. The papers are grounded in data collected in research studies conducted with preservice and in-service teachers, graduate and undergraduate students, and at-risk students. The papers will be compared and contrasted, and the benefits of semiotic frameworks in data analysis will be explored.

SILVER, HARRAH'S

Motivating Experiences in a Mathematics Course for Preservice Teachers

ORGANIZER/PRESENTER

Shelly Sheats Harkness, IUPUI–School of Education, Indianapolis, Indiana
mharknes@iupui.edu

PRESENTERS

Anastasia S. Morrone, IUPUI–School of Education, Indianapolis, Indiana

Beatriz D'Ambrosio, IUPUI–School of Education, Indianapolis, Indiana

Richard Caulfield, Indiana University, Bloomington, Indiana

Join us to learn about the Observing Patterns of Adaptive Learning protocol, watch videotape, and code transcripts. Presenters will discuss motivation and how this study led to more questions and a deeper understanding of the teaching/learning dimensions in this course.

COPPER, HARRAH'S

Preparing Elementary School Mathematics Teachers for Success: Implementing a Research-Based Mathematics Curriculum

ORGANIZER/POSTER PRESENTER

Joanne Caniglia, Eastern Michigan University, Ypsilanti, Michigan
mth_caniglia@online.emich.edu

POSTER PRESENTERS

Irene Duranczyk, Eastern Michigan University, Ypsilanti, Michigan

Elaine Richards, Eastern Michigan University, Ypsilanti, Michigan

Janet Arszno, Schoolcraft College, Livonia, Michigan

Rheta Rhubenstein, Schoolcraft College, Livonia, Michigan

Deborah Zopf, Henry Ford Community College, Dearborn, Michigan

Larry Smirski, Henry Ford Community College, Dearborn, Michigan

The Emerging Scholars Program for Teachers (EST) is an NSF-funded collaborative project among community colleges and a teacher-education university, which provides a sequence of mathematics coursework for underprepared prospective teachers adapting materials from NSF K-12 curricula and the Treisman Model. Preliminary findings suggest that increases in conceptual understanding, symbolic anxiety, and metacognition were found to be significant.

PARLOR F, HARRAH'S

Sunday, April 21, 2002
8:00 a.m.—9:30 a.m. (Concurrent Sessions)

Building Capacity in Mathematics Education: Where Will Our Future Leaders Come From?

ORGANIZER/PRESENTER

Joan Ferrini-Mundy, Michigan State University, East Lansing,
Michigan
jferrini@msu.edu

DISCUSSANTS (SOME UNCONFIRMED)

John S. Bradley, National Science Foundation, Arlington, Virginia
Janice Earle, National Science Foundation, Arlington, Virginia
Robert E. Reys, University of Missouri Columbia—Columbia,
Missouri
M. Kathleen Heid, Pennsylvania State University, University Park,
Pennsylvania

MODERATOR (UNCONFIRMED)

Glenda Lappan, Michigan State University, East Lansing, Michigan

This thematic presentation will focus on how research can help address the current and impending shortage of mathematics education leaders. By reviewing the current knowledge base about leadership development in mathematics education, highlighting prior and ongoing research about leadership development, and discussing implications for policy and practice possible strategies could emerge. Co-authors include Charles W. Anderson, James J. Gallagher, and Robert Floden.

RENO, HARRAH'S

Looking beyond Achievement Scores: Analyses of Urban Students' Mathematical Practices

ORGANIZER/PRESIDER/PRESENTER

Janine T. Remillard, University of Pennsylvania, Philadelphia, Pennsylvania
janiner@gse.upenn.edu

PRESENTERS

Caroline Brayer Ebby, University of Pennsylvania, Philadelphia, Pennsylvania

Shea Mosley Culpepper, University of Pennsylvania, Philadelphia, Pennsylvania

Valerie Klein, University of Pennsylvania, Philadelphia, Pennsylvania

Natasha Murray, University of Pennsylvania, Philadelphia, Pennsylvania

DISCUSSANT

Jo Boaler, Stanford University, Stanford, California

This symposium examines the roles that social and cultural contexts play in mathematical learning. Researchers present analyses of the mathematical practices of four students within different classroom and task settings in an urban elementary school, aiming to contribute to conceptions of mathematics learning.

LAKE TAHOE, HARRAH'S

On Culture, Race, and Being Explicit and Implicit in Mathematics Teaching

ORGANIZER/PRESENTER

Jesse Solomon, City on a Hill, Boston, Massachusetts
jesse_solomon@cityonahill.org

PRESENTER

Ricardo Nemirovsky, TERC, Cambridge, Massachusetts

In this working session we will explore interrelationships among teaching style, mathematics learning, culture, and ethnicity. The session will center on the analysis of a videotaped episode in a mathematics classroom at City on a Hill High School in Boston.

LAUGHLIN, HARRAH'S

Mathematical Early Field Experiences for Preservice Elementary School Teachers: Promoting Change or Confirming Tradition?

ORGANIZER/PRESIDER/PRESENTER

Rebecca Ambrose, San Diego State University/CRMSE, San Diego, California
rambrose@mail.sdsu.edu

PRESENTERS

Randy Philipp, San Diego State University/CRMSE, San Diego, California
Lisa Clement, San Diego State University/CRMSE, San Diego, California
Jennifer Chauvot, San Diego State University/CRMSE, San Diego, California
Cheryl Vincent, San Diego State University/CRMSE, San Diego, California
Eva Thanheiser, San Diego State University/CRMSE, San Diego, California

DISCUSSANTS

Sonia Woodbury, University of Utah, Salt Lake City, Utah
Sidney Rachlin, East Carolina University, Greenville, North Carolina

In this session, we will compare data from four kinds of practical experiences to consider the potential of early field experiences to stimulate preservice teachers to think in new ways about mathematics teaching and learning.

SILVER, HARRAH'S

The Use of Learning Trajectories in Curriculum Development and Research

ORGANIZERS/PRESENTERS

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

Julie Sarama, University at Buffalo, State University of New York, Buffalo, New York
jsarama@buffalo.edu

PRESENTERS

Michael T. Battista, Kent State University, Kent, Ohio
Richard Lesh, Purdue University, West Lafayette, Indiana
Marty Simon, Pennsylvania State University, University Park, Pennsylvania
Les Steffe, University of Georgia, Athens, Georgia

DISCUSSANT

Arthur J. Baroody, University of Illinois at Urbana-Champaign, Champaign, Illinois

One central principle of recent research and development projects is the use of learning trajectories. The participants describe how, in the context of their various projects, learning trajectories function in theory, research, and development.

COPPER, HARRAH'S

Didactique of Mathematics and Mathematics Education: Connecting Two Research Traditions As We Discuss Brousseau's *Theory of Didactical Situations*

ORGANIZERS/FACILITATORS

Patricio Herbst, University of Michigan, Ann Arbor, Michigan
pgherst@umich.edu

Ginger Warfield, Purdue University, West Lafayette, Indiana
warfield@purdue.edu

PARLOR C, HARRAH'S

Web-Based Mathematics Assessment and Student Performance

ORGANIZER/POSTER PRESENTER

Diem M. Nguyen, Texas A&M University, College Station, Texas
dnguyen@coe.tamu.edu

This session will address issues related to mathematics assessment and student performance in the context of computer-based technology. Participants will have a chance to learn how the Web-based test is automatically graded, how the test data are automatically collected and stored on the server, and how the test administrator can monitor test takers from his or her own office.

PARLOR F, HARRAH'S

10:00 a.m.—11:30 a.m. (Concurrent Sessions)

The Role of Argumentation in Mathematics Classrooms

ORGANIZER/PRESENTER

Joy Whitenack, University of Missouri—Columbia, Columbia, Missouri
whitenackj@missouri.edu

PRESENTERS

Erna Yackel, Purdue University Calumet, Hammond, Indiana

Michelle Stephan, Purdue University Calumet, Hammond, Indiana

DISCUSSANT/REACTOR

Bob Speiser, Brigham Young University, Provo, Utah

The presenters will address using argumentation theory as a methodological tool to interpret classroom events and how argumentation theory can be used to account for students' collective mathematical activity over an extended period of time.

RENO, HARRAH'S

Functions, Rates, and Proof: The Situated Knowledge of Early Career Secondary School Mathematics Teachers

ORGANIZER/PRESENTER

Lew Romagnano, Metropolitan State College of Denver, Denver, Colorado
romagnal@mscd.edu

PRESENTERS

Dominic Peressini, University of Colorado at Boulder, Boulder, Colorado

Hilda Borko, University of Colorado at Boulder, Boulder, Colorado

Candace Wooley, University of Colorado at Boulder, Boulder, Colorado

Kate Masarik, University of Colorado at Boulder, Boulder, Colorado

What do secondary school teachers know about mathematics, and how does that knowledge develop across the many contexts of teacher preparation and full-time teaching? Participants in this session will explore both answers as well as new questions raised by an analysis of longitudinal data.

LAKE TAHOE, HARRAH'S

Examining Teacher Change in Large-Scale School-Based Reform Efforts: What Do Different Perspectives Have to Offer?

ORGANIZER/PRESIDER/PRESENTER

Susan D. Nickerson, San Diego State University/CMRSE, San Diego, California
snickers@sunstroke.sdsu.edu

PRESENTERS

Judith T. Sowder, San Diego State University/CMRSE, San Diego, California

Rose Taylor, Baker Elementary School, San Diego, California

DISCUSSANTS

Denise Mewborn, University of Georgia, Athens, Georgia

Mary Kay Stein, University of Pittsburgh, Pittsburgh, Pennsylvania

In this session, we will share what we have learned in coordinating perspectives in an ongoing longitudinal study of a cohort of teachers, individually and as a community of learners, engaged in a mathematics reform effort.

LAUGHLIN, HARRAH'S

Elementary School Teachers' Mathematical Subject Knowledge: Problematizing Normative Models

ORGANIZER/PRESIDER/PRESENTER

Mike Askew, King's College, London, England
mike.askew@kcl.ac.uk

PRESENTERS

Alison Millett, King's College, London, England
Dylan William, King's College, London, England
Tamara Bibby, King's College, London, England
Jeremy Hodgen, King's College, London, England
David C. Johnson, King's College, London, England

DISCUSSANTS

Deborah Ball, University of Michigan, Ann Arbor, Michigan
Jo Boaler, Stanford University, Stanford, California
Beatriz D'Ambrosio, IUPUI–School of Education, Indianapolis, Indiana

Although it is accepted that a relationship exists between subject knowledge and pedagogic content knowledge, the nature of this relationship remains open to exploration. Drawing on both new empirical studies and theoretical models, this session addresses issues concerning this relationship.

SILVER, HARRAH'S

Perspectives on Classroom-Based Research on the Teaching and Learning of Mathematics in the Context of Technology

ORGANIZERS/PRESENTERS

M. Kathleen Heid, Pennsylvania State University, University Park, Pennsylvania
ik8@psu.edu
Rose Mary Zbiek, University of Iowa, Iowa City, Iowa
rose-zbieck@uiowa.edu

PRESENTERS

Glendon W. Blume, Pennsylvania State University, University Park, Pennsylvania
Teresa Finken, University of Iowa, Iowa City, Iowa
Gina Foletta, Northern Kentucky University, Highland Heights, Kentucky
Brad Glass, University of Delaware, Newark, Delaware
Karen Hollebrands, North Carolina State University, Raleigh, North Carolina
Cynthia Piez, University of Idaho, Moscow, Idaho

REACTOR

Sharon Dugdale, University of California at Davis, Davis, California

Presenters will report on recent yearlong classroom experiments using technology-intensive secondary school mathematics curricula and connect them to research experiences over the past decade. The session underscores what is learned through data from complementary studies with various teaching and learning perspectives.

COPPER, HARRAH'S

Translating Policy into Practice: What Can Teachers Learn by Studying *Principles and Standards for School Mathematics*?**ORGANIZER/PRESENTER**

Dawn Berk, Michigan State University, East Lansing, Michigan
berk@msu.edu

WORKING GROUP LEADERS

Cheryl Dodd, Waldron Middle School, Fowler, Michigan
Laura Hahn, Walter French Academy, Lansing, Michigan
Dori Leyko, Haslett Middle School, Haslett, Michigan
Jan Luft, Owosso Middle School, Owosso, Michigan
Jeanne Meier, Walter French Academy, Lansing, Michigan
Michelle Payne, Kinawa Middle School, Okemos, Michigan
Michele Oszust, Owosso Middle School, Owosso, Michigan
Barry Scates, Kinawa Middle School, Okemos, Michigan
Kathy Thelen, Immaculate Heart of Mary–St. Casimir School, Lansing, Michigan
Mary Margaret Utess, Immaculate Heart of Mary–St. Casimir School, Lansing, Michigan
Stacie Vietzke, Haslett Middle School, Haslett, Michigan

DISCUSSANT

Diana Lambdin, Indiana University Bloomington, Bloomington, Indiana

This work session will engage the audience in a discussion of how mathematics teachers might make sense of the *Standards* and what they might learn in the process, providing empirical data of one effort to involve teachers in such work.

ELKO, HARRAH'S

Increasing the Mathematical Achievement Scores of African American Students: Building a Bridge over the Gap

ORGANIZER/POSTER PRESENTER

Carey Montalvo, Franklin Park Magnet School, Cape Coral, Florida
carey@cyberstreet.com

This poster session will look at the current research on raising mathematical achievement scores of African American students. Curriculum, teaching strategies, and theory of what the research says is working will be addressed.

PARLOR F, HARRAH'S

11:40 a.m.—12:40 p.m. (Lunchtime Discussion)

Mentoring Session for Novice Researchers

ORGANIZERS

Frank Lester, Indiana University Bloomington, Bloomington, Indiana,
lester@indiana.edu

Doug Grouws, University of Iowa, Iowa City, Iowa
douglas-grouws@uiowa.edu

PRESENTERS

A group of experienced researchers will serve as informal mentors.
(The list of mentors will be made available at the conference registration table.)

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. The session will be organized in roundtable format, with each mentor assigned to chat with a roundtable of five to ten participants. Participants will switch tables once or twice during the session so that everyone has the opportunity to interact with more than one mentor.

ELKO, HARRAH'S

12:45 p.m.—3:15 p.m. (Concurrent Sessions)

Increasing Students' Achievement: Building on Ideas and Promoting Thinking about Mathematics

ORGANIZERS/PRESENTERS

Gerald Kulm, Texas A&M University, College Station, Texas
gklum@coe.tamu.edu

Mary Margaret Capraro, Texas A&M University, College Station, Texas
mmcapraro@coe.tamu.edu

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

PRESENTER

Elizabeth Hastings, Oakwood Intermediate School, College Station, Texas

Presenters will discuss the results of implementing the *Connected Math* program and the overall achievement of students when teachers build on students' ideas and promote students' thinking about mathematics. We will discuss how mathematics education research supports standards-based teaching and learning.

RENO, HARRAH'S

Studying the Impact and Influence of Standards: Considerations in Building a Research Agenda

ORGANIZER/MODERATOR/WORKING GROUP FACILITATOR

Joan Ferrini-Mundy, Michigan State University, East Lansing, Michigan
jferrini@msu.edu

PRESENTER/WORKING GROUP FACILITATOR

Frank Lester, Indiana University Bloomington, Bloomington, Indiana

PRESENTER/SYNTHESIZER

Iris Weiss, Horizon Research, Inc., Chapel Hill, North Carolina

PRESENTER

Deborah Ball, University of Michigan, Ann Arbor, Michigan

WORKING GROUP FACILITATORS

Bill Tate, Texas Christian University, Fort Worth, Texas

Gary Martin, Auburn University, Auburn, Alabama

John Dossey, Illinois State University, Normal, Illinois

Mary Kay Stein, University of Pittsburgh, Pittsburgh, Pennsylvania

The session is intended to help engage the mathematics education research community in a coherent effort to study the impact and influence of standards documents, with particular focus on NCTM's *Principles and Standards for School Mathematics*.

LAKE TAHOE, HARRAH'S

Examining the Efficacy of a Professional Development Program: Lessons from a Middle School Mathematics Program

ORGANIZER/PRESENTER

Stephen J. Pape, Ohio State University, Columbus, Ohio
pape.12@osu.edu

PRESENTER

Beth Greene Costner, Winthrop University, Rock Hill, South Carolina

FACILITATORS

Clare Bell, Arts Impact Middle School, Columbus, Ohio
Michelle K. Reed, Ohio State University, Columbus, Ohio

DISCUSSANTS

Edward A. Silver, University of Michigan, Ann Arbor, Michigan
Alice Artzt, Queens College of the City University of New York,
Flushing, New York

As teachers work to meet accountability demands, professional development is forefront in educational research. In this session, participants will examine ways of investigating program efficacy. One group's efforts to examine a funded program will serve as a foundation for discussion.

LAUGHLIN, HARRAH'S

Issues Raised at the Working Conference on Teacher Research

MODERATOR

Virginia Stimpson, University of Washington, Seattle, Washington
ginis@u.washington.edu

PRESENTERS

Carmelita Santiago, Jean Childs Young Middle School, Atlanta, Georgia
Christine D. Thomas, Georgia State University, MIST, Decatur, Georgia
Janet Sharp, Iowa State University, Ames, Iowa
Barbara Adams, Des Moines Public Schools, Des Moines, Iowa
Virginia Bastable, Mount Holyoke College, Summer Math for Teachers,
South Hadley, Massachusetts
Nancy Horowitz, TERC, Cambridge, Massachusetts
Rita Janes, Memorial University of Newfoundland, Newfoundland
Education Association, St. Johns, Newfoundland

Participants in the NCTM Working Conference on Teacher Research in Mathematics Education will share their thoughts on issues raised at the conference related to such topics as the following: How do teacher-researchers get support for

their work? How is the work of teacher-researchers shared with a larger audience?
What ethical issues arise in this work?

SILVER, HARRAH'S

Dynamic Representations in a Technological Environment?

ORGANIZER

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

PRESENTERS

Colette Laborde, Laboratoire Leibniz, Institut Imag, Grenoble, France
Rudolf Sträßer, Universität Bielefeld, Hamm, Germany

DISCUSSANT

M. Kathleen Heid, Pennsylvania State University, University Park, Pennsylvania

This symposium addresses the issue of the role of multiple representations in developing links within the process of sense making when using computer environments like dynamic software in geometry.

COPPER, HARRAH'S

The Full Monty: Exposing Our (Unstated) Assumptions as Mathematics Teacher Educators

ORGANIZER/PRESENTER

A. J. (Sandy) Dawson, Pacific Resources for Education and Learning (PREL), Honolulu, Hawaii
dawsons@prel.org

PRESENTERS

Lesley Lee, Pacific Resources for Education and Learning (PREL), Honolulu, Hawaii

Joseph Zilliox, University of Hawaii at Manoa, Honolulu, Hawaii

In order to examine the theoretical assumptions that underpin our practice as mathematics teacher educators, participants will design a professional development program for a diverse teaching population and debate the merits of the various theoretical lenses that influenced their choices.

ELKO, HARRAH'S

Improving Mathematics Achievement Through Study Groups: A Countywide Initiative

ORGANIZER/PRESIDER/POSTER PRESENTER

Robert M. Bayer, Stark County Schools, Canton, Ohio
bayer@sparcc.org

DISCUSSANTS

Jo Marie Kutscher, Perry Local Schools, Massillon, Ohio
William Sereychas, Lake Local Schools, Millbury, Ohio
David Pilati, Plain Local Schools, Canton, Ohio

The Math Vision Project provides structure and leadership for teacher-led study groups, which conduct local action research to improve students' achievement. Measurable goals and results reported by seventeen districts participating in 2000–01 will be shared from this ongoing project.

PARLOR F, HARRAH'S

A Comparison of Teachers' Knowledge of Students' Competence in Mathematics Problem Solving and Students' Perceived Self-Efficacy

ORGANIZER/POSTER PRESENTER

Peggy P. Chen, City University of New York, New York, New York
onwestside@att.net

POSTER PRESENTER

Theresa K. Glover, College of St. Scholastica, Duluth, Minnesota

This study investigated seventh-grade mathematics teachers' knowledge of their students' competence in mathematics problem solving and the students' own perceived competence (self-efficacy), as well as whether teachers and students vary in their perceptions because of the difficulty level of the problems.

PARLOR F, HARRAH'S

3:30 p.m.–4:45 p.m. (Closing Session)

Systemic Reform in Mathematics Education: What Have We Learned?

SPEAKER

Iris R. Weiss, Horizon Research, Inc., Chapel Hill, North Carolina
iweiss@horizon-research.com

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

LAKE TAHOE, HARRAH'S

PROGRAM AT A GLANCE

Friday, April 19, 2002

7:00 p.m. (Welcome)

7:30 p.m. (Opening Address)

Does Lesson Study Have a Future in the United States?

Lake Tahoe, Harrah's

Reception follows

Saturday, April 20, 2002

8:00 a.m.—10:30 a.m. (Concurrent Sessions)

A Lesson Study Initiative Aimed at Exploring How to Promote Critical Thinking: Findings, Process, and Reflections

Lake Tahoe, Harrah's

A Research Symposium on Issues Related to African American Students' Mathematics Achievement: Where Do We Go from Here?

Laughlin, Harrah's

Interpretations of Mathematical Literacy

Silver, Harrah's

Gesture in Mathematical Thinking, Learning, and Teaching

Parlor C, Harrah's

Investigations of the Major Conceptual Strands of First-Semester Calculus: The Role of Theory in Research and Practice

Parlor B, Harrah's

Students' Understanding of First-Order Differential Equations

Parlor F, Harrah's

9:00 a.m.—10:30 a.m.

NSF Investments in Mathematics Education Research

Copper, Harrah's

11:00 a.m.—12:30 p.m. (Concurrent Sessions)

Reforming K–5 Mathematics in an Urban District: What We've Learned in Baltimore

Lake Tahoe, Harrah's

Design Principles as an Impetus for Teacher Change and Student Learning

Laughlin, Harrah's

Students' Experiences Moving between "Traditional" and "Reform" Curricula: What Are the Implications for K–16 Mathematics Education?

Silver, Harrah's

What Are Teacher-Researchers Learning about Their Practice?

Copper, Harrah's

MeasureUp: Elementary Mathematics Curriculum Development

Parlor B, Harrah's

Writing about Research for a General Practitioner

Parlor C, Harrah's

Lesson Study, American Style

Parlor E, Harrah's

A Visual Analysis of Knowledge Networks: Students Discuss Calculus

Parlor F, Harrah's

12:45 p.m.—1:45 p.m. (Lunchtime Discussion)

Networking and Informal Conversations

Parlor D, Harrah's

2:00 p.m.—3:30 p.m. (Concurrent Sessions)

Professional Development and Effective Teaching: Improving Students' Mathematical Learning in the Early Years of School through Improving Teachers' Knowledge

Laughlin, Harrah's

Teaching Experiment Methodologies: What Counts as Evidence?

Parlor B, Harrah's

A Case Study of Two Schools Undergoing Systemic Reform in Mathematics

Parlor C, Harrah's

District-Level Lesson Study: How Do Japanese Teachers Improve Their Teaching of Elementary Mathematics?

Parlor F, Harrah's

2:00 p.m.—4:30 p.m. (Concurrent Sessions)

Culture, Language, and Power within Mathematics Classrooms and Beyond: New Lenses for Examining Equity in Mathematics Education

Lake Tahoe, Harrah's

PROGRAM AT A GLANCE

Semiotic Perspectives in Mathematics
Education Research

Silver, Harrah's

Motivating Experiences in a Mathematics
Course for Preservice Teachers

Copper, Harrah's

Preparing Elementary School Mathematics
Teachers for Success: Implementing a Research-
Based Mathematics Curriculum

Parlor F, Harrah's

Sunday, April 21, 2002

8:00 a.m.—9:30 a.m. (Concurrent Sessions)

Building Capacity in Mathematics Education:
Where Will Our Future Leaders Come From?

Reno, Harrah's

Looking beyond Achievement Scores: Analyses
of Urban Students' Mathematical Practices

Lake Tahoe, Harrah's

On Culture, Race, and Being Explicit and
Implicit in Mathematics Teaching

Laughlin, Harrah's

Mathematical Early Field Experiences for
Preservice Elementary School Teachers:
Promoting Change or Confirming Tradition?

Silver, Harrah's

The Use of Learning Trajectories in Curriculum
Development and Research

Copper, Harrah's

Web-Based Mathematics Assessment and
Student Performance

Parlor F, Harrah's

10:00 a.m.—11:30 a.m. (Concurrent Sessions)

The Role of Argumentation in Mathematics
Classrooms

Reno, Harrah's

Functions, Rates, and Proof: The Situated
Knowledge of Early Career Secondary School
Mathematics Teachers

Lake Tahoe, Harrah's

Examining Teacher Change in Large-Scale
School-Based Reform Efforts: What Do Different
Perspectives Have to Offer?

Laughlin, Harrah's

Elementary School Teachers' Mathematical Subject
Knowledge: Problematizing Normative Models

Silver, Harrah's

Perspectives on Classroom-Based Research on
the Teaching and Learning of Mathematics in
the Context of Technology

Copper, Harrah's

Translating Policy into Practice: What Can
Teachers Learn by Studying *Principles and
Standards for School Mathematics?*

Elko, Harrah's

Increasing the Mathematical Achievement
Scores of African American Students: Building a
Bridge over the Gap

Parlor F, Harrah's

11:40 a.m.—12:40 p.m.

Mentoring Session for Novice Researchers

Elko, Harrah's

12:45 p.m.—3:15 p.m. (Concurrent Sessions)

Increasing Students' Achievement: Building on
Ideas and Promoting Thinking about Mathematics

Reno, Harrah's

Studying the Impact and Influence of
Standards: Considerations in Building a
Research Agenda

Lake Tahoe, Harrah's

Examining the Efficacy of a Professional
Development Program: Lessons from a Middle
School Mathematics Program

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Issues Raised at the Working Conference on
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Dynamic Representations in a Technological
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The Full Monty: Exposing Our (Unstated)
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Improving Mathematics Achievement Through
Study Groups: A Countywide Initiative

Parlor F, Harrah's

A Comparison of Teachers' Knowledge of
Students' Competence in Mathematics Problem
Solving and Students' Perceived Self-Efficacy

Parlor F, Harrah's

3:30 p.m.—4:45 p.m. (Closing Session)

Systemic Reform in Mathematics Education:
What Have We Learned?

Lake Tahoe, Harrah's

Notes

Notes

Notes

**NCTM 2002 Research Pre-session
General Evaluation Form**

1. The most useful part of the Pre-session for me was...

2. The least useful part of the Pre-session for me was...

3. Were there research topics that you expected to be included but weren't?

4. Sessions were designed to create opportunities for interaction between presenters and participants. Please comment on the opportunities for such interaction.

5. Which of the following best describes you? (Please circle as many as apply.)
 - a. Graduate student
 - b. School administrator or supervisor
 - c. K-12 teacher
 - d. Researcher
 - e. Mathematician
 - f. Higher education/mathematics education
 - g. Higher education/other
 - h. Professional developer
 - i. Other _____

6. How often have you attended the Research Pre-session?
(Please circle one.)
- a. First time
 - b. Second time
 - c. Third time
 - d. More often than three times

7. Please feel free to offer any additional comments.

