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Announcements

Registration and all sessions are located in the Pennsylvania Convention Center corridor across from Room 105 AB.
A light reception will be held Monday evening following the opening session in the Philadelphia Marriott Liberty Ballroom.
Research posters can be seen in Room 108 A on Tuesday, April 20.
Informal meetings can be held on Wednesday, April 21, in Room 108 B of the Convention Center.
Proceedings from the Research Catalyst Conference will be available in the NCTM Bookstore beginning Wednesday, April 21.
The Call for Papers for the next Research Preession, to be held in Anaheim, California, in April 2005, will be available online May 1, 2004.
All sessions will be in the Pennsylvania Convention Center.

Monday, April 19, 2004

7:00 P.M.—8:30 P.M.

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

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

In the United States there is an unprecedented amount of attention being paid to research in education. Calls have been made for improvements in educational research so that scientific evidence and research-based practices can guide educational improvement. As part of this public and professional discourse on the overall quality of education research, mathematics education research has been subjected to considerable critique. In this talk, I will offer some observations about the accomplishments and shortcomings of research in mathematics education and a few suggestions about how to enhance both the quality and impact of research in and on mathematics education.
Tuesday, April 20, 2004

8:00 A.M.–10:30 A.M.

2. Standards Impact Research Group: Setting a Research Agenda

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

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

9:00 A.M.–10:30 A.M.

3. Improving the Mathematics Learning of Indigenous Australian Students

ORGANIZER/SPEAKER
Annette R. Baturo
Queensland University of Technology, Brisbane, Queensland, Australia
a.baturo@qut.edu.au

SPEAKERS
Elizabeth Warren
Australian Catholic University, Brisbane, Queensland, Australia
Thomas J. Cooper
Queensland University of Technology, Brisbane, Queensland, Australia

A number of projects are being conducted in Australian indigenous communities. These projects, which aim to improve the teaching and learning of mathematics for indigenous students, will be overviewed. Developments in mathematics pedagogy and their implications for indigenous students will be explored. Wider teaching implications will also be discussed.
4. An Analysis of Mathematics Textbooks and Courses for Prospective Elementary School Teachers

**Organizer/Speaker**
Raven M. Wallace  
Michigan State University, East Lansing, Michigan  
ravenmw@msu.edu

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

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

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

**Organizer/Speaker**
Linda Davenport  
Boston Public Schools, Boston, Massachusetts  
ldavenport@boston.k12.ma.us

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

**Discussant**
Kay McClain  
Vanderbilt University, Nashville, Tennessee

In this symposium, we present case studies from three elementary schools in Boston in order to examine and compare the role that districtwide mathematics assessments and rubrics play as tools for communication about mathematics teaching and learning.
6. Multiple Perspectives on Negotiating Mathematics Reform in Urban Schools

**Organizer/Speaker**
Natasha M. Murray
University of Pennsylvania, Philadelphia, Pennsylvania

**Speakers**
Janine T. Remillard
University of Pennsylvania, Philadelphia, Pennsylvania
Kimberly L. Blagmon
University of Pennsylvania, Philadelphia, Pennsylvania
Valerie Klein
University of Pennsylvania, Philadelphia, Pennsylvania
Angela McIver
University of Pennsylvania, Philadelphia, Pennsylvania
Lanette Waddell
University of Pennsylvania, Philadelphia, Pennsylvania

**Discussant**
Jacqueline Leonard
Temple University, Philadelphia, Pennsylvania

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

Organizer/Presenter
Zhonghe Wu
Texas A&M University, College Station, Texas
johnwu@neo.tamu.edu

Presenters
Shuhua An
California State University, Long Beach, California
Chunxia Qi
Beijing Normal University, Beijing, People's Republic of China
Li Yu
Future Education Division, National Center for Education Development Research, Beijing, People's Republic of China
Lanying Li
Beijing Zhongguancun Second Primary School, Beijing, People's Republic of China

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


Organizer/Presenter
K. Ann Renninger
Swarthmore College, Swarthmore, Pennsylvania
krennin1@swarthmore.edu

Presenters
Christopher J. DiGiano
University of Colorado, Boulder, Colorado
Wesley Shumar
Drexel University, Philadelphia, Pennsylvania
Suzanne Alejandre
The Math Forum, Philadelphia, Pennsylvania
Leslie Nielsen
Issaquah High School, Issaquah, Washington
In this interactive session, presenters will offer an overview about forms of collaboration that contributed to the development and use of technology-rich problems. Following this, attendees and presenters will consider the collaboration represented in this project and use this information to identify design principles for problem and project development.

11:00 A.M.–12:30 P.M.

9. Developing Strategic Leadership: Insights from Research and Practice

**Organizer/Presenter**
Barbara Miller  
Education Development Center, Newton, Massachusetts  
bmiller@edc.org

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

**Discussant**
Judi Fonzi  
University of Rochester, Rochester, New York

Leadership teams charged with designing, implementing, and monitoring mathematics reform face tremendous challenges. We will discuss how both research and the wisdom of practice can inform leaders as they engage in this strategic work, drawn from the *Handbook for Strategic Leadership for Mathematics and Science Partnerships*, and will invite participants to discuss their ideas.
11:00 A.M.–12:30 P.M. (CONTINUED)

10. Research on Students’ Learning of Probability: Implications and Connections

ORGANIZER/PRESENTER
Hollylynne Stohl
North Carolina State University, Raleigh, North Carolina
hollylynne@ncsu.edu

PRESENTERS
Carolyn Maher
Rutgers University, New Brunswick, New Jersey
Lyn English
Queensland University of Technology, Brisbane, Queensland, Australia
Betsy Berry
Purdue University, West Lafayette, Indiana
James E. Tarr
University of Missouri—Columbia, Columbia, Missouri
Dave Pratt
University of Warwick, Coventry, United Kingdom

DISCUSSANT
J. Michael Shaughnessy
Portland State University, Portland, Oregon

This symposium brings together several key researchers who have studied students’ learning of probability in various contexts. This research, cumulating more than fifteen years, can influence future work in learning and teaching probability and has important implications for, and connections to, other research in mathematics education.
11. International Project on Mathematical Attainment: Four Perspectives

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

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

**Discussant**
Jerry P. Becker
Southern Illinois University, Carbondale, Illinois

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

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

**Organizer/Moderator**
Paul E. Kehle
Indiana University, Bloomington, Indiana
pkehle@indiana.edu

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

We begin with short presentations about our longitudinal, focused, comparative evaluation of student achievement with TERC’s “Investigations” curriculum. We are in the first year of data collection and will share instruments, preliminary results, and design guidelines. Then, in small groups, participants will discuss our study and conceptualize their own studies.
11:00 A.M.–12:30 P.M. (CONTINUED)

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

**Organizer/Speaker**
Sandy Dawson  
University of Hawaii, Honolulu, Hawaii  
dawsona@hawaii.edu

**Speaker**
Joseph Zilliox  
University of Hawaii, Honolulu, Hawaii

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

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

**Speaker**
Stephane Baldi  
American Institutes for Research, Washington, D.C.

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

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1:30 P.M.–2:30 P.M.

### 15. Mentoring Session for Novice Researchers

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

Robert Reys  
University of Missouri—Columbia, Columbia, Missouri
MENTORS
Marilyn Carlson
Arizona State University, Tempe, Arizona
Daniel Chazan
University of Maryland, College Park, Maryland
Marta Civil
University of Arizona, Tempe, Arizona
James T. Fey
University of Maryland, College Park, Maryland
Richard Lesh
Purdue University, West Lafayette, Indiana
Rose Mary Zbiek
The Pennsylvania State University, University Park, Pennsylvania

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

16. A Math Project’s Impact on Preservice Teachers’ Notions of Student Thinking

ORGANIZER/POSTER PRESENTER
Stephanie L. Behm
Virginia Tech, Blacksburg, Virginia
sbehm@vt.edu

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

**Organizer/Poster Presenter**
Zaur Berkaliev  
Department of Mathematics, California State University Fresno, Fresno, California  
zaur_berkaliev@csufresno.edu

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

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

**Organizer/Poster Presenter**
Robert Q. Berry III  
Old Dominion University, Norfolk, Virginia  
rqberry@odu.edu

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

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

**Organizer/Poster Presenter**
Joanne C. Cariglia  
Eastern Michigan University, Ypsilanti, Michigan  
janigla@emich.edu

**Poster Presenter**
Barbara Leead  
Eastern Michigan University, Ypsilanti, Michigan

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

**Organizer/Poster Presenter**
Tutita M. Casa
University of Connecticut, Storrs, Connecticut
tutita.casa@uconn.edu

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

21. Mathematics Faculty Collaborate: Learning from Classroom Video

**Organizer/Poster Presenter**
Julie Cwikla
University of Southern Mississippi Gulf Coast, Long Beach, Mississippi

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

22. Teacher Development through Research-Based Curricular Materials

**Organizer/Poster Presenter**
Donna P. Diaz
Clemson University, Clemson, South Carolina
ddiaz@clemson.edu

Although limited research exists to suggest the possibility that standards-based curricular materials may support teacher learning, such materials are primarily developed with the student’s learning in mind. This action research study examines possible design components that could be included in curricular materials to support teacher learning.
23. Students’ Algebraic Understandings of the Concepts of Variable and Function

**Organizer/Poster Presenter**
Angeles Dominguez
ITESM, Campus Monterrey, Monterrey, Mexico
angeles.dominguez@itesm.mx

**Poster Presenter**
Ernesto Colunga
ITESM, Campus Monterrey, Monterrey, Mexico

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

24. Preservice Mathematics Teachers’ Knowledge of High School Trigonometry

**Organizer/Poster Presenter**
Cos D. Fi
University of North Carolina at Greensboro, Greensboro, North Carolina
cdfi@uncg.edu

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

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

**Organizers/Poster Presenters**
Shawn Garnett
Humboldt Elementary School, Portland, Oregon
Kimla Johnson-Koziuk
Grout Elementary School, Portland, Oregon

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

**Organizer/Poster Presenter**
Christopher E. Hartmann
Georgia State University, Atlanta, Georgia
chartmann@gsu.edu

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

27. An Analysis of Preservice Teacher Written Explanations

**Organizer/Poster Presenter**
Drew K. Ishii
The Ohio State University, Columbus, Ohio

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


**Organizer/Poster Presenter**
Gwendolyn M. Lloyd
Virginia Tech, Blacksburg, Virginia
lloyd@vt.edu

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

Organizer/Poster Presenter
Chandra Orrill
LPSL-University of Georgia, Athens, Georgia
corrill@coe.uga.edu

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

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

30. Research Findings Involving Number Operations and Algebraic Thinking Games

Organizer/Poster Presenter
Enrique Ortiz
University of Central Florida, Orlando, Florida
ortiz@mail.ucf.edu

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

31. The Impact of a Professional Development Program on Teachers’ Self-Efficacy

Organizer/Poster Presenter
Anne Papakonstantinou
Rice University, Houston, Texas
apapa@rice.edu
This presentation examines the impact of the Rice University School Mathematics Project's (RUSMP) Summer Program for PreK–12 teachers on teachers' self-efficacy. Results support the prediction that the manipulation of self-efficacy antecedents increases teacher self-efficacy. How to use RUSMP's model for promoting large increases in teacher self-efficacy will be discussed.

32. The Differences between Computation Methods in Contexts

ORGANIZER/POSTER PRESENTER
Sung Sun Park
Chunchon National University of Education, Chunchon, Korea
starsun@cnue.ac.kr

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

33. An Analysis of Preservice Teachers’ Knowledge of Technology

ORGANIZER/POSTER PRESENTER
Diana S. Perdue
Virginia State University, Petersburg, Virginia
dperdue@vsu.edu

This presentation will address a study of preservice teachers’ knowledge and skills regarding technology (calculator and computer). Results of a five-year survey of preservice teachers enrolled in required teaching with technology courses will be discussed.
34. What Can We Learn from Lesson-Study Debriefing Sessions?

**Organizer/Poster Presenter**
Rebecca R. Perry
The Lesson Study Group at Mills College, Oakland, California
rperry@mills.edu

**Poster Presenter**
Mary N. Leer
School District of Lancaster, Lancaster, Pennsylvania

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

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

**Organizer/Poster Presenter**
Olga M. Ramirez
University of Texas—Pan American, Edinburg, Texas
oram@panam.edu

**Poster Presenters**
John E. Bernard
University of Texas—Pan American, Edinburg, Texas
Walter J. Leite
University of Texas at Austin, Austin, Texas

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

ORGANIZER/POSTER PRESENTER
Jeanne D. Rast
St. John the Evangelist School, Hapeville, Georgia

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

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

ORGANIZER/POSTER PRESENTER
Celia K. Rousseau
University of Memphis, Memphis, Tennessee
croussea@memphis.edu

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

38. The Black-White Mathematics Achievement Gap: Teachers’ Beliefs and Practices

ORGANIZER/POSTER PRESENTER
Laurie H. Rubel
Brooklyn College, City University of New York, Brooklyn, New York

POSTER PRESENTERS
Tonya Gau
University of Wisconsin, Madison, Wisconsin
Marian Slaughter
University of Wisconsin, Madison, Wisconsin
Laura Grandau
University of Wisconsin, Madison, Wisconsin

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

**Organizer/Poster Presenter**
Robb Sinn
North Georgia College and State University, Dahlonega, Georgia
rsinn@ngcsu.edu

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

40. Preservice Teachers’ Observations of Children’s Mathematical Thinking

**Organizer/Poster Presenter**
Laura Jacobsen Spielman
Virginia Tech, Blacksburg, Virginia
spielman@vt.edu

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

41. Proportional Reasoning: Hypothetical Learning Trajectory

**Organizer/Poster Presenter**
Olof B. Steinthorsdottir
University of North Carolina at Chapel Hill, Chapel Hill, North Carolina
steintho@email.unc.edu

This study focused on 26 fifth-grade girls’ development of proportional reasoning. Four levels of proportional reasoning were identified. Level 1: ratio knowledge; Level 2: given ratio perceived as an indivisible unit; Level 3: the given ratio perceived as a reducible unit; Level 4: proportion understood in terms of multiplicative relations.
42. Three Major Forms of Lesson Study: The Rigidity and Flexibility of Lesson Study

Organizer/Poster Presenter
Akihiko Takahashi
DePaul University, Chicago, Illinois
atakahas@depaul.edu

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

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

43. Examining the Perceptions and Quality of Alternatively Prepared Teachers

Organizer/Poster Presenter
Christine D. Thomas
Georgia State University, Atlanta, Georgia
cthomas11@gsu.edu

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

Participants will be engaged in the examination of a standards-based alternative preparation program and discuss aspects of a longitudinal study designed to investigate the program with respect to teachers’ perceptions of their impact on student achievement in secondary school mathematics.
44. Preservice Teachers’ Use of Representation in Mathematics and Science Lesson Plans

ORGANIZER/POSTER PRESENTER
Robin A. Ward
University of Arizona, Tucson, Arizona

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

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

45. Modeling Children’s Early Developmental Patterns in Mathematics

ORGANIZER/POSTER PRESENTER
Jesse L. M. Wilkins
Virginia Tech, Blacksburg, Virginia
wilkins@vt.edu

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

46. Preservice Teachers’ Knowledge of Functions and Its Effect on Lesson Plans

ORGANIZER/POSTER PRESENTER
Matthew S. Winsor
The University of Texas at El Paso, El Paso, Texas
mwinsor@utep.edu
This session presents the results of a study that attempted to discover connections between preservice teachers’ content knowledge and their ability to plan lessons that are consistent with the NCTM Standards. Furthermore, the benefits of a “capstone” experience for preservice teachers, as recommended by the Conference Board of the Mathematical Sciences, will be presented and discussed.

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

Organizer/Poster Presenter
Joseph Jeremy Winters
Middle Tennessee State University, Murfreesboro, Tennessee
jwinters@mtsu.edu

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

48. Enhancing Students’ Understanding through Effective Use of the Chalkboard

Organizer/Poster Presenter
Makoto Yoshida
Global Education Resources, Madison, New Jersey
myoshida@globaledresources.com

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

Photo by Jim McWilliams. Copyright Philadelphia Convention & Visitors Bureau
3:00 P.M.–4:00 P.M.

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

Organizer/Speaker
Janice Earle
National Science Foundation, Arlington, Virginia

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

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

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

3:00 P.M.–4:30 P.M.

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

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

Speakers
Danny Bernard Martin
Contra Costa College, San Pablo, California
Marta Civil
University of Arizona, Tucson, Arizona
Beatriz Quintos
University of Arizona, Tucson, Arizona
Jill Bratton
University of Arizona, Tucson, Arizona
This session uses an equity and social justice lens to examine the views of parents of color about their children’s mathematics education. Our goal is to contribute to theoretical and practical knowledge on improving the mathematics learning of students of color and reduce the inequities engendered by certain practices in current mathematics education.

51. Some Aspects of Students’ and Teachers’ Conceptions of Variability

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

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

DISCUSSANT
Cynthia Langrall
Illinois State University, Normal, Illinois

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

**Organizer/Presenter**
Beatriz S. D’Ambrosio  
Indiana University–Purdue University Indianapolis, Indianapolis, Indiana  
bdambro@iupui.edu

**Presenters**
Marja van den Heuvel-Panhuizen  
Freudenthal Institute, Utrecht, Netherlands  
Signe Kastberg  
Indiana University–Purdue University Indianapolis, Indianapolis, Indiana  
George McDermott  
Indiana University–Purdue University Indianapolis, Indianapolis, Indiana  
Nivan Saada  
Indiana University–Purdue University Indianapolis, Indianapolis, Indiana

**Discussant**
Jan de Lange  
Freudenthal Institute, Utrecht, Netherlands

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

3:00 P.M.–5:30 P.M.

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

**Organizer/Presenter**
Rebecca McGraw  
University of Arizona, Tucson, Arizona  
mckraw@math.arizona.edu

**Presenters**
Kathleen Lynch  
Appalachian State University, Boone, North Carolina  
Fran Arbaugh  
University of Missouri—Columbia, Columbia, Missouri
54. Using Classroom Videos as a Vehicle for Teacher/Researcher Dialogue

**Organizer/Speaker**
Kathleen M. Morris  
American Association for the Advancement of Science Project 2061,  
Washington, D.C.  
kmorris@aaas.org

**Speaker**
Jon Manon  
University of Delaware, Newark, Delaware

**Facilitators**
Dana Griffith  
Appoquinimink School District, Odessa, Delaware  
Mary Koster  
Appoquinimink School District, Odessa, Delaware  
Karen Madden  
Colonial School District, New Castle, Delaware

**Discussant**
Linda Dager Wilson  
American Association for the Advancement of Science Project 2061,  
Washington, D.C.

This workshop provides a venue for a group of middle school mathematics teachers to pose questions on the data that are gathered in their classrooms, and it represents an authentic opportunity for the professional research community to refocus its attention on the questions of most immediate urgency to classroom practitioners.
4:45 P.M.–6:00 P.M.

55. Identifying Issues to Support the Graduate Student Community
SIG/RME Board and NCTM Research Committee

This session, jointly sponsored by the SIG/RME Board and the NCTM Research Committee, will provide a venue for a discussion with graduate students about how they might be better supported as they enter a new professional learning community. An outcome might be a proposal for how the SIG/RME and RC might continue to support graduate students by, for example, offering sessions during which graduate students might continue to network at subsequent NCTM research presession meetings.
The first presentation will document fifth-grade students’ fraction learning among students using the Investigations Curriculum. The second study will examine student achievement patterns and fidelity of implementation in middle school reform classrooms. The third presentation will report on a longitudinal study of reform mathematics curricula and the associated student outcomes. Lastly, a study describing student achievement in reform mathematics classrooms using hierarchical linear models (HLM) will be presented. Finally, the organizer will make a few brief comments before opening up the session for discussion and questions.
8:00 A.M.–9:30 A.M. (CONTINUED)

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

ORGANIZER/PRESENTER
Chris Rasmussen
San Diego State University, San Diego, California

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

DISCUSSANT
Michelle Stephan
University of Central Florida, Orlando, Florida

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

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

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

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

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

59. A National Study of Leadership in Mathematics Education

ORGANIZER/PRESENTER
Gail Burrill
Michigan State University, East Lansing, Michigan

PRESENTERS
Joan Ferrini-Mundy
Michigan State University, East Lansing, Michigan
Robert Reys
University of Missouri—Columbia, Columbia, Missouri

DISCUSSANT
Glenda Lappan
Michigan State University, East Lansing, Michigan

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

Photo by Edward Savaria, Jr. Copyright Philadelphia Convention & Visitors Bureau
60. New Conceptions and Strategies for the Doctoral Preparation of Researchers

**Organizer/Presenter**
James Fey  
University of Maryland, College Park, Maryland  
jimfey@mail.umd.edu

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

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

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

**Organizer/Presenter**
Barbara Jo Dougherty  
University of Hawaii, Honolulu, Hawaii  
bdougher@hawaii.edu

**Speaker**
Hannah Slovin  
University of Hawaii, Honolulu, Hawaii

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

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

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

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

**DISCUSSANT**
Patrick Thompson  
Vanderbilt University, Nashville, Tennessee

Technology as a tool can take on various meanings. It can be an object used for a specific purpose, or it can be transformed into an instrument for the construction of knowledge. This symposium addresses the process of instrumentation.
8:00 A.M.–10:30 A.M. (CONTINUED)

63. Representational Models for the Teaching and Learning of Mathematics

**Organizer/Presenter**
Robert M. Capraro  
Texas A&M University, College Station, Texas  
rcaprano@coe.tamu.edu

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

**Discussant**
Frank Lester  
Indiana University, Bloomington, Indiana

This session explores research-based answers to the use and role of idiosyncratic and mathematical representations and the mechanism of inductive representational bridging. University and school-site research partners will discuss data from the second year of a five-year longitudinal study providing research findings on the role of representation.
10:00 A.M.–11:30 A.M.

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

**Organizer**
Rose Mary Zbiek  
The Pennsylvania State University, University Park, Pennsylvania  
rmz101@psu.edu

**Presenters**
AnnaMarie Connor  
The Pennsylvania State University, University Park, Pennsylvania  
Gina M. Foletta  
Northern Kentucky University, Highland Heights, Kentucky

**Discussant**
Tom Evitts  
Shippensburg University, Shippensburg, Pennsylvania

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

Photo by Roman Viñoly. Copyright Kimmel Center for the Performing Arts
65. Students’ Perceptions of, and Engagement with, Mathematics Reform Practices

**Organizer/Speaker**
Carol E. Malloy  
University of North Carolina at Chapel Hill, Chapel Hill, North Carolina  
cmalloy@email.unc.edu

**Speakers**
Mark W. Ellis  
University of North Carolina at Chapel Hill, Chapel Hill, North Carolina  
Jon Star  
Michigan State University, East Lansing, Michigan  
Amanda Jansen Hoffman  
Michigan State University, East Lansing, Michigan  
Gary Lewis  
Michigan State University, East Lansing, Michigan  
John P. Smith III  
Michigan State University, East Lansing, Michigan

**Discussant**
Barbara Reys  
University of Missouri—Columbia, Columbia, Missouri

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


**Organizer**
Janine T. Remillard  
University of Pennsylvania, Philadelphia, Pennsylvania  
karajack@dolphin.upenn.edu

**Speakers**
Kara Jones Jackson  
University of Pennsylvania, Philadelphia, Pennsylvania  
Emily Bernier  
University of Arizona, Tucson, Arizona
David Baker  
University of Brighton, East Sussex, United Kingdom  
Eva Gold  
Research for Action, Philadelphia, Pennsylvania  
Diane Anderson  
Swarthmore College, Swarthmore, Pennsylvania

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

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

67. Writing about Research for a General Practitioner

ORGANIZER
Sandy Berger  
Reston, Virginia

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

68. Publishing in the Journal for Research in Mathematics Education

ORGANIZER/PRESENTERS
JRME Editorial Panel, NCTM, Reston, Virginia

This session will present information about publishing research in the JRME, particularly dissertation research. The purpose is to acquaint new researchers with adapting a longer work into an article length paper that meets the standards of the JRME. In addition to an overview of the review process from the editors, presentations will be made by authors who have successfully published in the JRME.
10:30 A.M.–12:00 NOON

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

**Organizer/Presenter**
David L. Roberts
Laurel, Maryland
robertsdl@aol.com

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

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

1:30 P.M.–2:30 P.M.

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

**Organizer/Presenter**
Diana F. Steele
Northern Illinois University, DeKalb, Illinois
dsteele@math.niu.edu

I will present findings from a one-month teaching experiment in which I investigated in what ways seventh-grade students generalize patterns verbally and symbolically using geometric problem situations. The main questions that guided my research were (1) What enables students to make generalizations? (2) What modes of representations do they use? (3) In what ways did they understand concepts of variable and function?
1:30 P.M.–3:00 P.M.

71. “Theory” in Mathematics Education Scholarship

ORGANIZER/PRESENTER
Patricio Herbst
University of Michigan, Ann Arbor, Michigan
pgherbst@umich.edu

PRESENTER
Edward Silver
University of Michigan, Ann Arbor, Michigan

COMMENTERS
Jill Adler
University of the Witwatersrand, Johannesburg, South Africa
Anna Sfard
Michigan State University, East Lansing, Michigan
Frank Lester
Indiana University, Bloomington, Indiana
James Greeno
Stanford University, Stanford, California

The presenters describe the diverse ways in which “theory talk” has become a part of mathematics education scholarship and how it has shaped the way the field conceives of and treats its objects of study.
72. Building Practice from the Ground Up: The Potential of Early Field Experiences

**Organizer/Speaker**
Denise S. Mewborn  
University of Georgia, Athens, Georgia  
dnewborn@coe.uga.edu

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

**Discussant**
Lew Romagnano  
Metropolitan State College of Denver, Denver, Colorado

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

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

**Organizer/Presenter**
Jere Confrey  
Washington University, St. Louis, Missouri

**Presenters**
Vicki Stohl  
Mathematical Sciences Education Board, Washington, D.C.  
Douglas Grouws  
University of Missouri—Columbia, Columbia, Missouri  
Carolyn Mahoney  
Elizabeth City State University, Elizabeth City, North Carolina  
Patrick Thompson  
Vanderbilt University, Nashville, Tennessee
The Mathematical Sciences Education Board of the National Research Council has completed a review of the evaluation data on thirteen NSF-supported and six commercially generated mathematics curriculum materials. This review, its accompanying framework for evaluation, and recommendations for future evaluation of mathematics curriculum materials is the subject of this session.

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

**Organizer**
John Olive
University of Georgia, Athens, Georgia
jolive@coe.uga.edu

**Speakers**
Kay McClain
Vanderbilt University, Nashville, Tennessee
Megan Loef Franke
University of California, Los Angeles, Los Angeles, California
Andrew G. Izsák
University of Georgia, Athens, Georgia

**Discussant**
Randolph Philipp
San Diego State University, San Diego, California

Three major research projects will illustrate advancements for research and practice in mathematics education that can be gained through coordinated analyses of student learning, teacher cognition, and classroom practices. The presentations will articulate research questions, describe methods, and identify difficulties that arise from the complex research designs.
75. The Impact of Standards-Based Middle School Mathematics Curricula——Three Studies

**Organizer**
Robert Reys
University of Missouri—Columbia, Columbia, Missouri
ReysR@missouri.edu

**Speakers**
Gerald Kulm
Texas A&M University, College Station, Texas
Mary Shafer
Northern Illinois University, DeKalb, Illinois
Denisse R. Thompson
University of South Florida, Tampa, Florida
Oscar Chavez
University of Missouri—Columbia, Columbia, Missouri
James Tarr
University of Missouri—Columbia, Columbia, Missouri

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

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

**Organizer**
Karma G. Nelson
Montana State University, Bozeman, Montana
knelson@math.montana.edu

**Speakers**
Jennifer Kosiak
Montana State University, Bozeman, Montana
David R. Erickson
University of Montana, Missoula, Montana
Helen Gerretson
University of Northern Colorado, Greeley, Colorado
Jeff Farmer
University of Northern Colorado, Greeley, Colorado
Lori Reinsvold

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

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

106 AB

1:30 P.M.–3:00 P.M.

77. Wireless Technology in Mathematics Education: Reflections and Directions

**Organizer/Presenter**
Michael Meagher
The Ohio State University, Columbus, Ohio
meagher.10@osu.edu

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

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

108 A
3:30 P.M.–4:45 P.M.

78. An Agenda for Studying the Impact of the Standards

**Moderator**
Robert Floden
Michigan State University, East Lansing, Michigan

**Organizers/Speakers**
Joan Ferrini-Mundy
Michigan State University, East Lansing, Michigan
Frank Lester
Indiana University, Bloomington, Indiana

**Discussants**
Diane Briars
Pittsburgh Public Schools, Pittsburgh, Pennsylvania
Margaret Goetz
Barry Sloane
National Science Foundation, Arlington, Virginia

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

2. The least useful part of the Presession for me was …

3. Were there research topics that you expected to be included but weren’t? If so, what were they?

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

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

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

7. Please feel free to offer any additional comments.