Volume 13, Issue 1—October 2003

Connections

Association of Mathematics Teacher Educators

Inside this issue:

"In many post-secondary institutions the number of prospective middle school mathematics teachers is small and these pre-service teachers have no distinct identity."

Moving to the Forefront: Teaching Mathematics in the Middle Grades

Karen Karp, University of Louisville
AMTE President

The middle grades remains a unique period of time in students' development and, as such, provides both challenges and opportunities for those who prepare teachers of middle grades mathematics. The onset of adolescence brings both biological and cognitive changes that influence students' lives and the distinctive ways in which they learn. The middle grades is a period of transition for students. At the level of teacher preparation, middle school pre-service teachers are often in an unusual position. In many post-secondary institutions the number of prospective middle school mathematics teachers is small and these pre-service teachers have no distinct identity.

At this writing many states do not have specific certification programs for middle grades mathematics. Teachers of middle grades mathematics, in these states, typically have certification as either secondary teachers of mathematics (grades 7-12), elementary education, or a variety of other fields. In states with middle grades certification, pre-service teachers often take mathematics content courses with elementary education students and take their mathematics methods course with secondary mathematics education students, or vice versa. Because some states require certification in two subject areas for middle school teachers, pre-service middle grades mathematics teachers' fieldwork is often split between mathematics and another discipline.

This unique situation of middle school pre-service mathematics teachers is a challenge for many AMTE members. This challenge centers on finding ways to provide the depth and breadth in mathematics education needed to accelerate the development of a strong cadre of middle school mathematics teachers and in promoting middle grades mathematics certification in those states not having such licensure programs. (Read AMTE member Johnny Lott's current presidential message in the *NCTM News Bulletin* about recommendations for quality middle grades programs)

For three years beginning in 1995 NSF supported the MIDDLE MATH project, which facilitated the teaming of mathematics faculty and mathematics education faculty with the goal of exploring the content and pedagogy critical for those who taught mathematics at the middle grades level. Led by AMTE member Sid Rachlin, there was a recognition that the success of the reform movement would depend on both the pre-service preparation and in-service professional development of teachers. The leaders of the initiative hoped to have a major effect on how mathematics was taught by a) examining the implications of the NSF-sponsored curriculum projects, b) sharing knowledge of middle school teacher preparation programs at several institutions, and c) discussing issues related to assessment, technology and preparing culturally-responsive teachers.

In 1998 a document was developed from this examination that captured the essential ideas that could strengthen the preparation of middle grades mathematics teachers. The document conveys strategies for engaging students and creating learning environments through considering implications of the following curricula: The Connected Mathematics Project, Math in Context, Middle-school Mathematics through Applications, Math Scape: The Seeing and Thinking Mathematically Project, and Math Thematics: Six Through

(Continued on page 16)

AMTE Business

Second Affiliate Group Approved

The Utah Association of Mathematics Teacher Educators has been accepted as AMTE's second affiliated group. Their charter will be formally presented at the AMTE 2004 conference in San Diego.

2003-2004 Project NExT Fellow

The AMTE Project NExT Fellow for 2003-04 is Mika Munakata, who is on the faculty at Montclair State University. Mika received her Ph.D. in mathematics education last year from Columbia University, writing a dissertation entitled "Estimation Skills in Secondary School Students: Relationships Among Strategy Use, Attitude Toward Estimation, and Category Width in Students Grade 5-11." Her research plans include investigations of teachers' attitudes towards estimation in the mathematics classroom and teachers' responses to students' questions about common mathematical procedures.

Proposed Dues Increase

The AMTE Board of Directors has recommended an increase in membership dues, to $45.00 for regular members (a $10 increase) and $22.50 for student members (a $5 increase). This proposed increase will be voted on at the Annual Business Meeting at the AMTE Conference in San Diego in January 2004 and if approved would go into effect following the conference. Membership dues were first set at $10 in 1993, increased to $20 in 1997, and increased to $35 in 2000.

In the past few years, services to AMTE members have increased, including the publication of the *Recommendations for Doctoral Programs* and the AMTE history document, expansion of the newsletter, and the development of a series of monographs (members will receive complimentary copies). Rising costs have also made even routine budgetary items increase at a rate that outpaces our current dues structure. These services and benefits require additional funding, which the dues increase to $45.00 will provide.

The Association of Mathematics Teacher Educators (AMTE)
Eighth Annual Conference

San Diego, CA - January 23 - 24, 2004

The Eighth Annual Conference of the Association of Mathematics Teacher Educators (AMTE) will be held in San Diego, CA, from Friday, January 23, through Saturday, January 24, 2004. Conference activities will begin with a Pre-conference Symposium and Dinner on Thursday evening, January 22, 2004.

REGISTRATION INFORMATION

The conference registration fee includes admission to all regular sessions and the Browsing Room. In addition, a large portion of the fee includes continental breakfast, lunch, dinner, and afternoon break on Friday and continental breakfast and lunch on Saturday. With your conference registration, you can renew your membership in AMTE by paying the $35 dues ($17.50 for students). The table found on the Conference Registration Form details the categories of registration. Notice that registration costs vary by postmark date and total registration is limited, so we encourage you to register early.

PRE-CONFERENCE SYMPOSIUM and DINNER

The AMTE Pre-conference Symposium and Dinner will be held on Thursday, January 22, 2004 from 5:30 – 8:30 p.m. A separate registration fee of $45 will be charged and includes dinner. Please note that on-site registration is not available for the Pre-Conference Symposium; please make sure to register in advance for the Pre-Conference Symposium as it will be limited to the first 150 registrants.

HOTEL RESERVATION INFORMATION

To reserve your room for the conference, call the phone number listed below or make your reservations online via the AMTE website. Be sure to mention the "Association of Mathematics Teacher Educators" conference when you call. The reservation deadline for the hotel is Friday, December 19, 2003.

Marriott Mission Valley Hotel
8757 Rio San Diego Drive
San Diego, CA 92108
TEL: 1-800-842-5329 (Reservations)

Single or Double Occupancy: **$134 per night**
Reservations must be made by **December 19, 2003**.

Driving directions and other related travel information has been made available on the AMTE web site.

Reservations made after **December 19, 2003** will be accepted on a space-available basis at the hotel's prevailing rate.

"With your conference registration, you can renew your membership in AMTE ."

ASSOCIATION OF MATHEMATICS TEACHER EDUCATORS
EIGHTH ANNUAL CONFERENCE
January 22 – 24, 2004 San Diego, CA

REGISTRATION FORM

Name _____ Name Tag _____

Mailing Address _____ [ ] Home [ ] Institution

City _____ State/Province _____ Zip/Postal Code _____

Work Phone ( )_____ Home Phone ( )_____ Fax ( )_____

E-mail _____ Institution Name _____

CONFERENCE FEES (amounts listed are US funds)**:** NOTE: THERE WILL BE NO ON-SITE REGISTRATION AVAILABLE. Also please note that conference registration is limited to 350 people, and registration for the Pre-conference Symposium and Dinner is limited to 150 people.

Meals included in the registration fee:

Friday: continental breakfast, lunch and dinner buffets and afternoon break

Saturday: continental breakfast and lunch buffet

Special dietary needs _____ (must be received by Jan. 1, 2004)

	Registration (Postmarked by Dec. 15)	Late Registration (Postmarked after Dec. 15 & received by Jan. 10)	Indicate Amount Paid Below
Member Registration	$210	$250	
Registration and Membership Dues	$245	$285	
Graduate Student Member Registration *	$150	$175	
Graduate Student Registration and Membership Dues *	$167.50	$192.50	
Pre-conference Symposium and Dinner (Thursday, 1/22, 5:30 - 8:30 p.m.) **	$45	$45	
Pre-conference Technology Workshop *** (Thursday, 1/22, 1:30 - 4:30 p.m.)	Free* **Preregistration Is required!**	N/A	__ Check here to attend
		TOTAL AMOUNT SUBMITTED	

* Graduate student advisor's signature:

_____

** The Pre-conference Symposium and Dinner is limited to the first 150 registrants.

*** The Pre-conference Technology Workshop is limited to the first 26 registrants.

If paying by credit card:

(circle one): Visa MasterCard Discover

Name (as it appears on the card): _____

Card number: _____

Expiration: _____ Amount to be charged: _____

Mail Registration Form with check made payable to AMTE to:

AMTE Conference Registration
Janet Warfield, AMTE Treasurer
Illinois State University
Mathematics Department
Campus Box 4520
Normal, IL 61790-4520
Fax: (309) 438-5866

PLAN AHEAD! There will be ***NO*** on-site registration!

NCTM at the AMTE Annual Conference

NCTM is pleased to be in attendance among the teacher educator leaders in mathematics education to support teacher educators and our common goal of supporting pre-service teachers of mathematics.

You will find NCTM's participation throughout the conference, including the following activities:

- Two half-day pre-session workshops on the new NCATE mathematics program review guidelines (see below)
- NCTM President Johnny Lott's session
- A session by NCTM's President-Elect Cathy Seeley
- A session to learn more about starting your own NCTM Student Affiliate
- Display of new publications and resources in the Browsing Room
- And finally, join NCTM for **a special treat for you** at Friday's luncheon and a discussion of the value and benefits of student membership.

NCTM will be in San Diego and looks forward to seeing you there!

NCTM Sponsors Two Pre-conference NCATE Workshops

Two institutional workshops for those preparing NCATE mathematics program reviews for 2006 and beyond will be offered on Thursday, January 22 at the AMTE annual meeting. One workshop will be offered from 8:30 until 11:30 a.m. and a repeat of the workshop will be offered from 1:30 until 4:30 p.m.

The workshop will include a discussion of the NCATE mathematics standards for elementary mathematics specialists, middle school mathematics teachers and high school mathematics teachers. An overview of the required program review matrix will be provided. A question and answer session will follow the presentation.

Presenters will be Connie Schrock, Emporia State University; Gladis Kersaint, University of South Florida; Jan Vandever, University of Alaska-Matsu, and Marilyn Hala, NCTM's NCATE Program Review Coordinator.

To sign up for this presession e-mail ncate-workshop@nctm.org. Please indicate if you prefer the morning or afternoon session.

CPTM: Mathematics for Teaching Pre-Conference Workshop

The Center for Proficiency in Teaching Mathematics (NSF Centers for Teaching and Learning) will sponsor a pre-conference to the AMTE Annual Conference focusing on teachers' learning of mathematics for teaching. The pre-conference is limited to 25 participants and pre-registration will be required. The pre-conference will be held Thursday, Jan. 22 from 9am-4pm. (Pre-conference check-in will begin at 8:30am.)

The session will focus on approaches to developing teachers' mathematical proficiency that emphasize using mathematical knowledge in teaching. We'll explore how to connect teachers' opportunities to learn mathematics to teaching practice.

To learn more about the pre-conference and how to apply, go to http://cptm.us/AMTE.

$(CM)^2$/Show-Me Pre-Conference: Mathematical Preparation of Middle School Mathematics Teachers

The Show-Me Project (NSF Middle School Curriculum Center) and the Connecting Middle School and College Mathematics Project (three-year NSF project) will jointly sponsor a pre-conference focusing on the mathematical preparation of middle school mathematics teachers. The pre-conference is limited to 60 participants and pre-registration is required (a registration fee of $25 will cover lunch and handout materials).

The pre-conference will be held Thursday, Jan. 22, from 11:00 – 4:30 (pre-conference check in between 10:00-11:00). Sessions will include:

- Overview of the state of middle school mathematics certification in the US
- The MET recommendations for middle school mathematics teachers
- Showcasing content materials for the mathematical preparation of middle school mathematics teachers
- Panel discussion on developing partnerships between mathematics educators and mathematicians in organizing and teaching mathematics content courses for middle school teachers.

For additional information and to register for the pre-conference, see the following website: http://showmecenter.missorui.edu/AMTE.

"for those preparing NCATE mathematics program reviews for 2006 and beyond"

AMTE Pre-Conference Program
Thursday, January 22, 2004

Thursday, 1:30–4:30 p.m.
Pre-Conference Technology Workshop

Multimedia Case Studies

Two teams of teacher educators report on their research and experiences using multimedia cases with preservice and inservice teachers. Participants will be invited to discuss ways in which they might use these resources, as well as issues related to their use.

Prospective Teacher Educators' Developing Perspectives on Teacher Education Through the Creation of Multimedia Case Studies
Joanna O. Masingila, Syracuse University
Bulent Cetinkaya, Syracuse University
Levi Molenje, Syracuse University

Using Multimedia Case Studies to Help Teachers Learn about Inclusion in the Elementary Mathematics Classroom
Babette Moeller, EDC/Center for Children and Technology
Barbara Dubitsky, Bank Street College of Education
Karen Marschke-Tobier, Bank Street College of Education
Harold Melnick, Bank Street College of Education
Linda Metnetsky, Bank Street College of Education

Attendance at the Pre-conference Technology Workshop is free, but pre-registration is required. The Workshop is limited to the first 26 registrants.

Thursday, 5:30–8:30 p.m.
Pre-Conference Symposium & Dinner

The Role of Teacher Educators as Leaders

Cathy Seeley, University of Texas at Austin
President-Elect, National Council of Teachers of Mathematics

Teacher educators play a critical role in the future of mathematics education. Come think about what you can do as a leader to support the improvement of mathematics teaching and learning in your community and beyond.

5:30-7:00 p.m. Presentation
7:00-8:30 p.m. Dinner

A separate registration fee of $145 is required for the Pre-Conference Symposium and Dinner. Attendance is limited to the first 150 registrants.

Preliminary Program
Eighth Annual AMTE Conference
Friday, January 23 – Saturday, January 24, 2004

Friday, 7:00–8:00 a.m.

Continental Breakfast

Friday, 8:00–9:30 a.m.

Adapting Professional Development Materials for Preservice

Nanette Seago, San Diego State University
Nicholas Branca, San Diego State University
Rebekah Elliott, University of Washington
Judy Mumme, WestEd
Lew Romagnano, The Metropolitan State College of Denver
Margaret S. (Peg) Smith, University of Pittsburgh

Do Your Students Understand That They Don't Understand? Developing Deep Understanding of Math Concepts with Preservice Secondary Teachers

Tracy L. Rusch, Wright State University
Terese A. Herrera, Eisenhower National Clearinghouse
Marsha L. Nicol, Capital University

Listening to Children: The Private Universe Project in Mathematics

Nancy Finkelstein, Harvard-Smithsonian Center for Astrophysics
Gordon Lewis, Annenberg/CPB

NAEP Student Responses: How Can We Use Them In Teacher Education?

Catherine A. Brown, Indiana University, Bloomington
Diana V. Lambdin, Indiana University, Bloomington
Kathleen Lynch, Indiana University, Bloomington
Rebecca McGraw, University of Arizona

No Teacher Left Behind: Conquering Credential Confusion

Shelley Kriegler, University of California, Los Angeles
Heather Calahan, Santa Monica-Malibu USD
Ted Gamelin, University of California, Los Angeles
Joann Iskin, Lennox School District

The Role of Mathematics in Teacher Preparation: Cross Categories of Content and Methods

Gail Burrill, Michigan State University
Al Cuoco, Educational Development Center
Bradford R. Findell, University of Georgia

Using Teacher-Produced Videotapes of Problem-Solving Interviews as a Professional Development Tool

Victoria Jacobs, San Diego State University
Rebecca Ambrose, University of California -- Davis
Dinah Brown, Oceanside Unified School District
Lisa Clement, San Diego State University

Using Videotape Case Studies of Classroom Instruction to Encourage Thoughtful Reflection on Teaching

Kate Kline, Western Michigan University
Theresa J. Grant, Western Michigan University

What is an Application on a Graphing Calculator? How Can Cell Sheet Bridge the Gulf Between Computers and Calculators?

Joseph R. Fiedler, CSU Bakersfield

Friday, 9:50–10:20 a.m.

"Departing On-Time": A Worthwhile Task for Students and Teachers

Michelle T. Chamberlin, University of Northern Colorado
Judith Zawojewski, Illinois Institute of Technology

IMAGES (Improving Measurement and Geometry in Elementary Schools)

Arlene L. Dowshen, Widener University

Integrating Knowledge of How Children Learn and Understand Mathematics into Mathematical Content Courses for Elementary Teachers

David Feikes, Purdue University North Central

Learning to Teach Standards-Based Mathematics: The Impact of Collaborative Inquiry Groups on Interns' Teaching Beliefs

Cindy S. Henning, Auburn University

P-16 Education Partnership: No Child Left Behind

Carolyn L. Pinchback, University of Central Arkansas
Carolyn C. Williams, University of Central Arkansas

Professional Development for Teacher Educators: Practicing What We Preach

Julie Cwikla, The University of Southern Mississippi -- Gulf Park

Using Instant Reaction Scenarios and Learning Episodes in Teaching Mathematics Methods Courses

Daniel Brahier, Bowling Green State University

When Is a Teacher Educator a Mathematician and Vice Versa?

Johnny W. Lott, The University of Montana

Where's the Math? Pre-service Teachers' Interpretations of Reform and Traditional Curricula

Brad Glass, University of Delaware
Laura Kincaid, University of Delaware

Friday, 10:30 a.m.–11:00 a.m.

Development of an Assessment Task and Rubric to Measure Secondary School Preservice Teacher Candidates' Content, Pedagogical, and Professional Knowledge

Hari P. Koirala, Eastern Connecticut State University

High-Tech Support for Preservice and Inservice K-8 Teachers of Mathematics

Judith Fraivillig, Rider University
Amy Wish, Rider University

Identifying, Developing and Assessing Mathematics Education Content Knowledge for K-8 Teachers

Lindsay Tartre, California State University, Long Beach
Sandi Machit, CSULB/Long Beach Unified School District
Kathleen Miller Rondinone, California State University, Long Beach

Improving Preservice Mathematics Teachers' Understanding of Fundamental Concepts in the Secondary Mathematics Curriculum

John Lorch, Ball State University
Elizabeth George Bremigan, Ball State University
Ralph Bremigan, Ball State University

Researching the Teaching and Learning of Measurement in the Middle Grades

Ron Preston, East Carolina University
Tony Thompson, University of Alabama

Responsive Interactions: A Framework for Analyzing and Supporting Teachers' Growth

Rebecca Ambrose, University of California -- Davis
Kristin Gibson, Mesa/Spring Valley School District
Victoria Jacobs, San Diego State University

Teachers Thinking About Students' Thinking

Sylvia Bulgar, Rider University
Roberta Y. Schorr, Rutgers University

Using Audio-analysis Reveals Ineffective Practice to Teachers

Ann R. Taylor, Southern Illinois University Edwardsville
Barbara O'Donnell, Southern Illinois University Edwardsville

Using the History of Mathematics in the Classroom: Engaging Teachers and Examining Attitudes

Kathleen Clark, University of Maryland

Friday, 11:15 a.m.–12:15 p.m.

Coaching Teachers in Their Classrooms to Implement Reform Mathematics

Jo Clay Olson, University of Colorado-Denver
Jeffrey E. Barrett, Illinois State University
Nicole Williams, Illinois State University

Collaboration Around Lesson Study: Guiding Preservice Mathematics Teachers Toward Student Higher-level Thinking and Conceptual Understanding

Dianne K. Erickson, Oregon State University
Margaret L. Niess, Oregon State University
Molly Taylor Beauchman, Oregon State University

Establishing AMTE Affiliates to Promote Professional Networks of Mathematics Educators

Carol Fry Bohlin, California State University, Fresno
Susan Beal, Saint Xavier University

Hand-held Technology Use: It's Not Just for Inservice Workshops Anymore

Christine A. Browning, Western Michigan University
Franklin D. Demana, The Ohio State University
Doug Owens, The Ohio State University

Linking Student Performance to Graduate Studies

Nancy S. Lewis, University of Central Florida
Michael Hynes, University of Central Florida
Kim Lowry, University of Central Florida

Meeting the Challenges: Designing and Implementing a Post-Baccalaureate Program for Mathematics and Science Teachers

John Lannin, University of Missouri-Columbia
Sandra Abell, University of Missouri-Columbia
Fran Arbaugh, University of Missouri-Columbia
William Boone, Indiana University, Bloomington
Mark J. Volkmann, University of Missouri-Columbia

Promoting Successful Mathematics Reform Teaching Via the Internet: Mathematics Online Support for Teachers (MOST)

Marilyn Strutchens, Auburn University
W. Gary Martin, Auburn University

Spending Time in Elementary Schools: Lessons Learned and Impact on Content/Methods Courses Taught

Pamela J. Wells, Grand Valley State University
David Coffey, Grand Valley State University

Teachers for a New Era at Michigan State University

Karen D. King, Michigan State University
Sharon Senk, Michigan State University
Sandra Wilcox, Michigan State University

Friday, 12:15–1:30 p.m.

AMTE Luncheon:

NCTM - Encouraging Student Memberships

Friday, 1:40–3:10 p.m.

Cabri Geometry Invades the World of the TI83Plus

Stephen F. West, SUNY College at Geneseo

Incorporating Digital Cameras into Mathematics Education Courses and K-12 Classrooms

Brian Sharp, University of Virginia
Beth Cory, University of Virginia
Denesa Sharp, Greer Elementary School

Learning From Each Other: Syllabus Exchange

Tad Watanabe, Penn State University
P. Mark Taylor, University of Tennessee

Mathematicians and Mathematics Teacher Educators Working Together to Improve K-12 Mathematics Education

Judith E. Jacobs, California State Polytechnic University, Pomona
Jodie Novak, University of Northern Colorado
Jack Price, California State Polytechnic University, Pomona
Randall J. Swift, California State Polytechnic University, Pomona

Professional Development Activities for an Integrated Group of Preservice, Middle and High School Teachers, and College and University Faculty

Karen Mitchell, Marshall University
Thomas J. Klein, Marshall University

Professional Development through Examination of Student Work on Performance Assessments

Joanne Rossi Becker, San Jose State University

The Mathematical Tasks Framework: A Guideline for Lesson Planning and Reflection

Elizabeth K. Hughes, University of Pittsburgh
Melissa Boston, University of Pittsburgh

Thinking Through a Lesson: Collaborative Lesson Planning as a Means for Improving the Quality of Teaching

Margaret S. (Peg) Smith, University of Pittsburgh
Victoria Bill, University of Pittsburgh

What are the Big Ideas of Early Algebra? What We Have Learned by Examining Cases of Children's Mathematical Thinking

Virginia Bastable, Mount Holyoke College

Friday, 3:30-4:30 p.m.

Diagnostic Teacher Assessments for Middle Grades Mathematics Teachers

William S. Bush, University of Louisville
Karen Karp, University of Louisville
Maggie McGatha, Northern Kentucky University
Robert Ronau, University of Louisville
Charles Thompson, University of Louisville

Enhancing Pre-service Teachers' Knowledge of Abstract Algebra through Peer Collaboration: Does This Impact Their Teaching of Secondary Mathematics?

Timothy P. Fukawa-Connelly, The University of Maryland
Kadian Howell, The University of Maryland
Anne Marie Marshall, The University of Maryland

Experiences of Mathematicians Trying to Become More Knowledgeable about The Mathematical Education of Teachers

Dale Oliver, Humboldt State University
Lynn McGrath, University of San Diego
Ginger Warfield, University of Washington

Implementing Performance-Based Technology Standards in Mathematics Education Courses

Suzanne R. Harper, Miami University
Shannon Driskell, University of Dayton

Involving Preservice and Inservice Teachers in Professional Development School-based Professional Development - The LINKAGES Project

Francis (Skip) Fennell, McDaniel College
Tom Rowan, University of Maryland

Lesson Study through a Mathematics Lens

Gail Hood, LessonLab
Joan Easterday, Sonoma County Office of Education
Theresa Hernandez-Heinz, University of California

Preservice Elementary Teachers' Beliefs About Mathematics

Frank Lester, Indiana University, Bloomington
Ayfer Kapusuz, Indiana University, Bloomington
Peter Kloosterman, Indiana University, Bloomington
Kelly McCormick, Indiana University, Bloomington

Talking the Talk: Focusing on Vocabulary

Susan Gay, University of Kansas
Carol Lucas, University of Central Oklahoma

What Implications Do Standards-based Middle Grades Math Curricula Have for Teacher Training?

Rick Billstein, The University of Montana

Friday, 5:00–6:30 p.m. General Session

Greetings
Karen Karp, President, Association of Mathematics Teacher Educators, University of Louisville
Johnny Lott, President, National Council of Teachers of Mathematics, University of Montana

The Judith E. Jacobs Lecture
The Role of Mathematics Teacher Education: Reform or Enculturation?

Thomas J. Cooney, University of Georgia (emeritus)

What do different stakeholders such as teachers, parents, students, and administrators bring to the enterprise of mathematics teacher education? These perspectives combined with professional statements such as the NCTM Standards, society's expectations for education more generally, and past scholars' views on education contribute to a climate that also helps define the role of mathematics teacher education. Do these various perspectives define a role that leads to reform or to enculturation? Issues and tensions in defining the role of mathematics teacher education will be addressed.

Friday, 6:30–8:00 p.m.

AMTE Dinner

Browsing Room
Open All Day Friday and Saturday

"Session Descriptions" are online in a detailed preliminary program.
www.amte.net
The final program will be available online closer to the conference.

Saturday 7:00–8:00 a.m.

Continental Breakfast

Saturday, 8:00-9:30 a.m.

Algebra Knowledge for Teaching at the Secondary Level: Implications for Teacher Preparation

Sharon Senk, Michigan State University
Gail Burrill, Michigan State University
Lew Romagnano, The Metropolitan State College of Denver
Judy Sowder, Center for Research in Mathematics & Science Education, San Diego State University

Approaches to Teaching Mathematics Content for Elementary Teachers

Janet Warfield, Illinois State University
Elaine Hutchison, UW-Stevens Point
Sue Mau, Indiana University--Purdue University Fort Wayne
Albert Otto, Illinois State University

Developing and Supporting Teachers to Take Leadership in Mathematics Professional Development

Judy Mumme, WestEd
Cathy Carroll, WestEd

How Can We Do It All? The Dilemmas of Preparing Preservice Mathematics Teachers to Work in Diverse Settings

Kate Masarik, San Diego State University
Rebekah Elliott, University of Washington
Anita Lenges, University of Washington
Virginia Stimpson, University of Washington

Integrating Handheld Technology into the Elementary/Middle School Mathematics Classroom: Concerns and Suggestions

Judith Olson, Western Illinois University
Melfried Olson, Western Illinois University

Performance Assessment Models for Teacher Preparation

Connie S. Schrock, Emporia State University
Judy O'Neal, North Georgia College & State University

The National Science Foundation's Directorate for Education and Human Resources Mathematics Education Portfolio Review Project: Implications for Mathematics Teacher Education

Joan Ferrini-Mundy, Michigan State University
Janice Earle, National Science Foundation
Robert Floden, Michigan State University

Using Mathematical Modeling in the Methods Class

Ronald A. Ward, Western Washington University
Sharon McCrone, Illinois State University
Martha VanCleave, Linfield College

Using Video Examples of Children's Mathematical Thinking to Explicate, Compare, and Critique Processes and Goals of Content and Pedagogy Instructors

Randy Philipp, San Diego State University
Nadine Bezuk (Speaker), San Diego State University
Lisa Clement, (Speaker), San Diego State University
Debbie Justeson (Speaker), Grossmont Community College
Eva Thanheiser (Speaker), San Diego State University
Peter Wiles, (Speaker), University of Arizona

Saturday, 9:50-10:20 a.m.

Capturing the Complexity of Teacher Development: Two Cases

Susan Nickerson, San Diego State University
Gail Moriarty, San Diego State University

Connecting Teaching Preparation and Practice Through a Virtual Mentoring Program

Janet Bowers, San Diego State University

Guiding Preservice Teachers' Development of a Technology-enhanced Pedagogical Content Knowledge for Teaching Mathematics

Margaret L. Niess, Oregon State University

Incongruities and Constraints: Reconciling University and K-12 Classroom Practices

Sandra L. Atkins, West Virginia University
Jill A. Perry, Rowan University

Lessons Learned From a Three-year Statewide Mathematics and Science Professional Development Program

Juli K. Dixon, University of Central Florida

Reading in the Content Area: A Mathematics Specific Course Example

Denisse R. Thompson, University of South Florida

Reflections of a Professional Development Journey: Learning From the Potholes We Encountered

Grace M. Benigno, University of Maryland
Kathleen Clark, University of Maryland
Anne Marie Marshall, University of Maryland

Research and Instruction in Dialogue: Exploring the Use of Reform-Oriented Curriculum Materials with Prospective Elementary Teachers

Gwendolyn Lloyd, Virginia Tech
Stephanie L. Behm, Virginia Tech
Laura J. Spielman, Virginia Tech

Supporting Change in Secondary Mathematics Classrooms: An Environment for New Teachers to Grow

Michael Mikusa, Kent State University
Judie Melillo, Kent State University

Saturday, 10:30-11:00 a.m.

A Collaborative Redesign of Mathematics and Methods Courses for Preservice Elementary Teachers

Nancy Smith, Emporia State University
Marvin Harrell, Emporia State University

A Virtual Field Experience: Your Students and Real Kids Working Together on Problem Solving Practice

Lisa Lavelle, The Math Forum @ Drexel

Assessing Geometric Reasoning in a Mathematics Content Course for Preservice Elementary Teachers

Kathy Burgis, Aquinas College
Judith Flowers, University of Michigan-Dearborn
Angela Krebs, University of Michigan-Dearborn
Joseph Spencer, Aquinas College

Comparing Face-to-face and WebCT Delivery of a Math Methods Course

Ramakrishnan Menon, California State University Los Angeles

Creating a Doctoral Program in Mathematics Education from Scratch (With the Help of AMTE!)

Mark Klespis, Sam Houston State University
Jan Scott, Sam Houston State University

Integrated Mathematics and Science Teacher Education Courses: A Modeling Perspective

Judith Zawojewski, Illinois Institute of Technology

Mathemagica: K-8 Online Professional Development in Mathematics Using Web-based Interactive Tools

William J. Masalski, University of Massachusetts

Preparing Experienced Teachers, Certified in an Area Other than Mathematics, to Teach Mathematics in the Middle Grades

Kenneth C. Wolff, Montclair State University
Mika Munakata, Montclair State University

Professional Development and Curriculum Alignment Impacts Student Achievement and Preservice Courses

Jean McGehee, University of Central Arkansas

Saturday, 11:15 a.m.-12:15 p.m.

Assessing Pedagogical Content Knowledge of Preservice / Inservice K-8 Teachers: Implications for Instruction

Cheryl A. Lubinski, Illinois State University
Thomas Fox, University of Houston-Clear Lake
Patricia A. Jaberg, Mount Mary College

Back in the Classroom Again! Math Educators Hit the K-12 Trail

Tom Bassarear, Keene State College
Carol Fry Bohlin, California State University, Fresno
Daniel Brahier, Bowling Green State University

Bringing a Problem Solving View to the Mathematical Preparation of K-12 Teachers and the Work of Collaborative Design Teams

DeAnn Huinker, University of Wisconsin-Milwaukee
Henry Kepner, University of Wisconsin-Milwaukee
Dan Lotesto, Milwaukee Public Schools
Richard O'Malley, University of Wisconsin-Milwaukee

Designing and Implementing a Conceptual Calculus Course for In-service Teachers

Karen Payne, San Diego State University
Kim Morris, San Diego Unified School District
Susan Nickerson, San Diego State University
Jocelyn Valencia, San Diego Unified School District

Helping Prospective Elementary Teachers Use Whole-class and Individual Assessments to Enhance Children's Mathematics Understanding

Rachelle Feiler, San Diego State University
Nadine Bezuk, San Diego State University

Integrating the Thinking of Middle Grades Students into a Mathematics Methods Course

Rheta N. Rubenstein, University of Michigan-Dearborn
Charlene Beckmann, Grand Valley State University
Michaele Chappell, Middle Tennessee State University
Ron Preston, East Carolina University
Denisse R. Thompson, University of South Florida

International Perspectives: TIMSS Video Studies, Exploring Algebra Teaching

Paige Kuni, Intel® Innovation in Education
Nanette Seago, San Diego State University

Lessons Learned from a Three-Year Secondary Mathematics Lesson Study Project

Yusuf Koc, Indiana University, Bloomington
Catherine A. Brown, Indiana University, Bloomington
Kathleen Lynch, Appalachian State University
Rebecca McGraw, University of Arizona

Starting a NCTM Student Affiliate: The Power of Community

W. Virginia Williams, National Council of Teachers of Mathematics
Joan Henn, Eastern Illinois University
William Speer, University of Nevada, Las Vegas

Saturday, 12:15–1:30 p.m.

AMTE Luncheon

Saturday, 1:40-2:40 p.m.

An Introduction to Korean Mathematics Through Geometry, Grades 1-6

Susan Beal, Saint Xavier University
Janice Grow-Maienza, Truman State University

Assigning Preservice Teachers in Field Experiences to Share Findings from Mathematics Task-Based Interviews With the Children's Teachers

Diana V. Lambdin, Indiana University, Bloomington
Kathy Essex, Indiana University, Bloomington
Kelly McCormick, Indiana University, Bloomington
Christine Oster, Childs Elementary School and Indiana University, Bloomington

Changing Practice Through Assessment

Steve Klass, San Diego State University
Gail Moriarty, San Diego State University

Effective Assessment of Field Experiences: Frameworks and Tools for Supporting Pre-service Teachers' Performance

Jennifer M. Bay-Williams, Kansas State University
David Allen, Kansas State University
Melisa Hancock, Manhattan/Ogden School District

Expanding the Role of Technology: Enhancing Teaching, Learning, and Assessment With Technology

Franklin D. Demana, The Ohio State University
Allan Bellman, University of California at Davis
Rose Mary Zbiek, Penn State University

Learning Through Teaching Practice in a Secondary Methods Class

Bradford R. Findell, University of Georgia
Dennis Hembree, University of Georgia

Ranking Doctoral Programs in Mathematics Education: A Worthwhile or Worthless Enterprise

Robert Reys, University of Missouri
Tom Carpenter, University of Wisconsin
Joan Ferrini-Mundy, Michigan State University
Jeremy Kilpatrick, University of Georgia

Using Cases to Prepare Secondary Mathematics Teachers

Mary C. Enderson, Middle Tennessee State University
Azita Manouchehri, Central Michigan University

Working Together for the Continuous Improvment of Math Education

NCSM Panel
Kay Gilliland, Mills College (organizer)

Saturday, 3:00–4:45 p.m. CLOSING SESSION

MathematicallySane.com:
Promoting Rational Discourse About Mathematics Education Reform

Ralph Connelly, Brock University
Judy Sowder, Center for Research in Mathematics and Science Education
Marilyn Strutchens, Auburn University
W. Gary Martin, Auburn University

AMTE Business Meeting

From The Mathematics Teacher Educator's Bookshelf: A Review of *Standards-Based School Mathematics Curricula*

Judith E. Jacobs, California State Polytechnic Univesrsity, Pomona

In *Standards-Based School Mathematics Curricula: What are They? What do Students Learn?*, Sharon L. Senk and Denisse R. Thompson provide documentation that addresses the question of how mathematics curricula impact student learning. The studies presented in this volume discuss 12 standards-based programs that were produced in response to the 1989 NCTM *Curriculum and Evaluation Standards for School Mathematics*.

The book is divided into five sections. The first and last sections consist of one chapter each. The first chapter presents the historical context for the development of the 12 programs as well as a discussion of research issues related to curricula. The last chapter provides a critical analysis of the findings presented in the book and the nature of the task of evaluating the impact on curricula on student learning.

Each of the three additional sections focuses on one of the grade spans: elementary, middle or high school. Each of these sections begins with an overview chapter that presents summary data on student mathematics achievement at that level and information on the NCTM *Curriculum and Evaluation Standards for School Mathematics'* expectations for that grade span. Chapters that address research findings on a particular standards-based program and student outcomes follow this introductory chapter. The section concludes with a chapter that discusses common themes across the programs as well as issues related to the research presented.

Four programs, *Math Trailblazers, Everyday Mathematics, Investigations,* and *Number Power* are discussed in the elementary programs section. The middle school section presents information on *Connected Mathematics, Mathematics in Context (MiC),* and *Middle Grades MATH Thematics: the STEM Project.* At the high school level, *The Core-Plus Mathematics Project, MATH Connections, Interactive Mathematics Program, SIMMS integrated Mathematics,* and the UCSMP Secondary School Curriculum are the programs detailed.

So, did the programs "work?" Jeremy Kilpatrick (p. 483) in the final chapter states that the research presented demonstrates "… the tendency of students in new curricula to perform at the same level as comparison students on standardized tests and to perform at higher levels on specifically designed tests." These results, he points out, mimic the results found when evaluating the curricula from the new math era. He, as did the authors of the summary chapters for each grade span, offers a detailed analysis of problems with the research designs for the studies presented. Some of the causes of concern were the appropriateness of the measures used, the comparability of the experimental and control groups of students, and the impact of teacher effects.

Given the lack of rigor of the research studies reported and the dated nature of the material (We now have a new NCTM standards document.), is the book worth reading? To that question I give an unqualified yes. The true value of this volume is not in what is reported but how the information in the book is presented. This book is a gold mine. It allows mathematics teacher educators to have a one-volume resource from which their students can learn some of the recent history of mathematics education while sharpening their research evaluation skills. Following are some of the serendipitous treasures in this book.

The first chapter by Senk and Thompson and the last chapter by Kilpatrick provide newcomers to mathematics education a brief introduction to the history of the "new math" and the "math wars." Part of that history documents the role that the National Science Foundation played in creating mathematics curricula. It also provides readers with a sense of why NCTM's 1989 *Curriculum and Evaluation Standards for School Mathematics* was such a revolutionary document. Kilpatrick (p. 474) provides a concise comparison between the new math and current standards-based mathematics curricula. The curricula from both eras deemphasized procedures and emphasized understanding. The critical difference between the programs from these two eras is they way the programs attempt to

(Continued on page 19)

"In many ways, these examples of what standard-based mathematics can look like provide a common basis for discussions of what good mathematics is."

Sharon L. Senk and Denisse R. Thompson (Editors). *Standards-Based School Mathematics Curricula: What are They? What do Students Learn?* Mahwah, NJ: Lawrence E. Erlbaum Associates, 2003.

Journal of Mathematics Teacher Education (JMTE)

The Journal of Mathematics Teacher Education is devoted to topics and issues involving the education of teachers of mathematics at all stages of their professional development. JMTE will serve as a forum for research on teachers' learning, for considering institutional, societal, and cultural influences that impact the education of mathematics teachers, and for creating models for educating teachers of mathematics. Critical analyses of development initiatives, technology, assessment, teaching diverse populations, policy matters, and developments in teaching as these topics relate to educating mathematics teachers are welcome. Critiques of reports or books that affect mathematics teacher education will appear as appropriate. In general, JMTE encourages the submission of articles that identify, examine, and develop areas of knowledge related to mathematics teachers' learning and development.

Selected Articles from JMTE in 2003:

- Editorial: What Does ``Design Research'' Offer Mathematics Teacher Education? *Terry Wood, Betsy Berry*
- Learning to Learn to Teach: An ``Experiment'' Model for Teaching and Teacher Preparation in Mathematics, *James Hiebert, Anne K. Morris, Brad Glass*
- The Role of Mathematics Teachers' Content Knowledge in their Teaching: A Framework for Research Applied to a Study of Student Teachers, *Jeremy A. Kahan, Duane A. Cooper, Kimberly A. Bethea*
- Interconnecting Content and Community: A Qualitative Study of Secondary Mathematics Teachers, *Andrea Lachance, Jere Confrey*
- Study Groups as a Form of Professional Development for Secondary Mathematics Teachers, *Fran Arbaugh*
- Teachers and `Street Children': On Becoming a Teacher of Mathematics, *Renuka Vithal*
- Four Student Teachers' Pedagogical Reasoning on Functions, *Victoria Sánchez, Salvador Llinares*
- Adapting Reform Ideas in Different Mathematics Classrooms: Beliefs Beyond Mathematics, *Paola Sztajn*

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Moving to the Forefront

(Continued from page 1)

Eight Mathematics. This work describes not only the content that is needed in middle school classrooms but also in college coursework. In addition, chapter-long case studies describe how institutions worked to improve the preparation of middle school mathematics teachers through field experiences, improving their beliefs and attitudes, assessments, technology integration and specific mathematics content courses. In many cases, actual examples of problems used in the methods classrooms were shared.

AMTE members contributed to these case studies by providing detailed information about their programs and courses. AMTE member Ed McClintock and his colleague Zhonghong Jiang at Florida International University shared a program that provided middle school certification in technology education as well as in mathematics. AMTE member Doug Owens described how Ohio State's integrated program included mathematics, science and technology, while AMTE member Susan Beal detailed an innovative two-course sequence called "Math and Cognition for the Middle School" offered at St. Xavier University. AMTE Board member, Susan Friel at the University of North Carolina – Chapel Hill, shared how focusing on three central components of teaching, mathematics content, mathematics pedagogy and middle grades students' thinking about mathematics, can create a framework upon which a strong program can be based. Denisse Thompson and Michaele Chappell, both AMTE members, revealed detailed descriptions of possible assessments for a middle grades mathematics methods class used at the University of South Florida. These chapters present precisely the kind of information needed as AMTE members work to revise and refine their courses and programs for middle grades mathematics teachers.

Although this work was completed in 1998, the issues are just as relevant and significant today as they were five years ago. AMTE has decided to publish *MIDDLE MATH: Improving the Preparation of Teachers of Middle Grades Mathematics* as a resource for AMTE members. Members will receive this monograph during the current academic year and AMTE hopes it will be useful to all members as a catalyst for conversations about teaching middle grades mathematics and as a resource for conversations about the status and need for change in middle grades mathematics education at their institutions.

In another project that focused on the teaching of mathematics at the middle grades level, the national group, Achieve, Inc., created a draft document entitled *Foundations for Success* (2002), which can be read or downloaded at (http://www.achieve.org/achieve.nsf/MAP?openform). Achieve, Inc. is an independent, bipartisan, non-profit organization overseen by a board of governors and corporate leaders. Its mission is to help states improve schools by benchmarking their academic standards and assessments against the best national and international examples, providing sustained public leadership and advocacy to raise standards and student performance, and serving as a resource center for standards-based reform.

Achieve's Mathematics Achievement Partnership (MAP) draft document describes the core knowledge and skills that middle school students (and teachers) must master in preparation for high school. AMTE was officially invited to respond to MAP's *Foundation for Success* with a formal review. AMTE member Jenny Bay-Williams took the lead in organizing the project. An email message was sent to AMTE members requesting participation in this analysis. A number of well-qualified experts at the middle grade level responded. AMTE selected a task force composed of: Rick Billstein, Brian Boyd, Linda Braverman, Margaret Buerman, Joseph Dalin, Melissa Freiberg, Terry Herrera, Cathy Kinzer, John Luedeman, Michael Lutz, Mika Munakata, Maggie Niess, Karen Norwood, Clara Nosegbe Okoka, Diane Resek, Bill Speer, Denisse Thompson (and a group of her graduate students), Tad Watanabe, and Judy Werner. The task force reviewed the document: a) for clarity of vision and purpose, b) to determine whether an "actionable" vision of middle school mathematics teaching and learning was communicated, c) for the appropriateness of the content strands and topics, d) for the degree of alignment with key national documents (e.g. *Principles and Standards for School Mathematics* (NCTM, 2000), *Mathematical Education of Teachers* (CBMS, 2001)), and e) to evaluate the quality of the sample mathematics tasks. The official review is found at the "Position Papers and Publications" section of the AMTE website at www.amte.net.

AMTE is providing resources and oppor-

"These chapters present precisely the kind of information needed as AMTE members work to revise and refine their courses and programs for middle grades mathematics teachers."

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matics content and pedagogy as well as the core knowledge needed by middle grades students. The middle grades deserves a special emphasis in light of the key transitions of students that occur in the period between elementary and high school years. By moving issues related to middle grades mathematics teaching to the forefront of our thinking and seeking ways to connect pre-service teachers with the mathematics content and pedagogy most appropriate for middle grades students, our teacher education programs can improve in important ways. •

THEORY & PRACTICE: Responses to No Child Left Behind

P. Mark Taylor, University of Tennessee

The legislation known as No Child Left Behind (NCLB) and its implementation at the federal and state levels has been the focus of a lot of attention in recent months. Many states still have a K-8 certification with a limited amount of mathematics required. As a result, those states are scrambling to find ways to react to NCLB's call for "Highly Qualified Mathematics Teachers." Each state had to begin by defining what it means to be highly qualified. This call also places urgency on the hiring of Highly Qualified Mathematics Teachers for high school for those schools where out-of-field teaching is a regular occurrence.

How does this effect mathematics teacher educators? The question was put to AMTE members: "How are you and your institution responding to the dilemmas presented by No Child Left Behind and the call for highly qualified mathematics teachers?" Four responses to this question are included for your consideration.

Alan Zollman, Northern Illinois University

One of my personal concerns is the vague wording of "Call for Highly Qualified Mathematics Teachers." The problem is the confusion between "highly qualified" and "high quality." In the Mathematical Sciences Department at Northern Illinois University we view "highly qualified" as meeting the requirements of our programs. Our graduates are "highly qualified" but not necessarily "high quality," at least in their first several years of teaching.

Our department's expectations are higher than the state minimum. Simultaneously, we also stress our incentives for doing our program: excellent placement of our graduates, sound content knowledge of mathematics, nurturing sequence of courses preparing for student teaching, even a mathematics minor available for elementary education majors.

The mathematics educators in Illinois formed an association (IMTE) to have a coordinated voice and communication with the state board of education. IMTE members volunteer and serve on state committees. NCLB is a dilemma but possibly also an opportunity.

Denise Mewborn, University of Georgia

At this point, I think it would be a bit of a stretch to say that we are doing something specific to respond directly to NCLB. However, many of the things that we are already doing address the need to have a highly qualified mathematics teacher in every classroom. A few examples: We are working with particular school districts to offer masters degrees in mathematics education to cohorts of elementary or middle school teachers.

The State of Georgia has recently changed middle school certification to require a subject matter-specific certification rather than a general middle school certification. Our preservice middle school program has long offered a specialization in mathematics, but we have recently added a new course to reflect the current emphasis in many districts on algebra in the middle school. Through Project InterMath (http://www.intermath-uga.gatech.edu/) we are leading a statewide effort to upgrade the qualifications of inservice middle school teachers who teach mathematics.

We are working to develop a mathematics endorsement (add-on to a teaching certificate) for preservice and inservice elementary teachers. This endorsement will consist of a sequence of 3 mathematics content courses and 2 mathematics methods courses.

We have numerous professional development projects supported by Teacher Quality or National Science Foundation funding to work with teachers in particular schools (or clusters of schools) to improve their mathematical content knowledge and pedagogy. In many of these projects we are working with teachers to look carefully at test results (both externally-mandated and local tests) to determine what these data tell us about student learning.

(Continued on page 18)

"How are you and your institution responding to the dilemmas presented by No Child Left Behind and the call for highly qualified mathematics teachers?"

(Continued from page 17)

Some of our faculty are involved in the writing and review of the state's curriculum objectives in mathematics. Georgia is attempting to create a more rigorous and meaningful set of objectives to enhance student learning state-wide.

We have created a track in our Education Specialist degree program (Ed.S.) for teachers who wish to pursue National Board certification. This program is a collaborative effort with faculty in science education and English education. The primary goal is to provide a cohort of teachers with a supportive structure in which to pursue certification and a degree. Another goal is to infuse elements of the standards from the National Board process into our graduate classes for practicing teachers.

Finally, we are giving more explicit attention to state and federal legislation and to issues surrounding externally-mandated, high stakes assessment in our teacher education courses.

Barbara Dougherty, University of Hawaii

The Curriculum Research & Development Group of the University of Hawaii has received a higher-education grant from NCLB funds to support teacher development in the elementary grades. The professional development, part of a larger elementary research and development project called Measure Up, focuses on enhancing teacher content knowledge in algebra and measurement. With the emphasis on research, the professional development content uses a theoretical basis from the work of Davydovd and Elkonin (see the Soviet Studies Series from NCTM) that suggests that students should learn mathematics from a generalized standpoint, rather than from a number perspective. To communicate the mathematics in this context, students must rely on an algebraic system which leads to the use of variables in grade one, long before numbers are introduced.

With this perspective, teachers look at the mathematical content in a different way. But, specifying content is only one small part of the professional development. Our grant supports continued professional development experiences throughout the school year but in a different way from most sessions. Since our group is affiliated with a research school, we, as faculty members, teach in those classes that are related to our research work. Thus during follow-up sessions, the grant is helping us support teachers to visit our classes so that they can observe students doing mathematics in a different way and interact with teachers who are using a non-traditional pedagogical approach. This creates a marriage between the professional development experience and the classroom.

Maggie Niess, Oregon State University

Under the No Child Left Behind mandate, "Highly qualified" is defined as a bachelor's degree and a mathematics endorsement to demonstrate that mathematics teachers have clear knowledge of the mathematics they teach. In Oregon this mandate has not seemed to present difficulties for the many preservice teacher preparation programs in preparing their mathematics education students to be mathematics teachers. As several mathematics education professors have said, "We will continue doing what we have done." But we really cannot afford to look at the problem like this!

The problem area in Oregon is with the middle school where it has been said that at least 56% of the teachers are not "highly qualified" for teaching the core subject areas. Over the past 10 or 15 years middle school principals have preferred to hire generalists in response to research suggesting that adolescents learn better when taught by one teacher throughout the day. The question is how these teachers will gain the "highly qualified" status.

One strategy to deal with this problem has been that the Oregon Teacher Standards and Practices Commission has adopted some temporary rules (OAR 584-100-0022) to designate middle level teachers "highly qualified" in their content areas if they perform in the "average performance range" on the appropriate subsections of the Multiple Subject Assessment Test (MSAT). As the new regulations says "If the candidate meets or exceeds 77.5% of the total points available in a core academic subject matter area, the candidate meets the requirements for having passed a rigorous state test in the core academic subject matter area at the middle level only." That means that possibly getting as few as 10 of 24 multiple choice questions correct on the MSAT tests allows a middle school mathematics teacher to be labeled "highly qualified."

Another strategy that I have been involved with has been to develop a district-wide inservice program for all the teachers teaching mathematics (middle and high school) over the entire school year with an expressed intent of

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The problem area in Oregon is with the middle school where it has been said that at least 56% of the teachers are not "highly qualified" for teaching the core subject areas.

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helping teachers prepare for the mathematics endorsement test. But we are using this opportunity to do more than simply prepare them to pass the test. The focus will be on increasing their content knowledge along with their knowledge of State and National Standards and knowledge of effective pedagogical practices for teaching mathematics. Additionally, we are providing supervision and assistance as they implement their knowledge in teaching mathematics. And, we have required that at least two of the teachers be supported in attending the annual NCTM conference along with the instructor to bring back ideas and materials to share with the other teachers in the program. It seems to me that this approach has a better chance of making a difference in children's understanding of mathematics.

How are you responding? To continue this discussion, log on to the AMTE Discussion Forum at http://www.webct.com/amte/. •

THEORY & PRACTICE Question for the March Issue of *AMTE Connections*: **Framework for a Methods Courses**

How would you describe the current framework for your mathematics methods course? What are the main goals and how are they achieved?

AMTE members are urged to respond to this question. Responses will be summarized and/or quoted. You may submit your answer by posting a response to the questions on the AMTE Discussion Forum (http://www.webct.com/amte/) in the "General Discussion" area. Responses submitted by February 1 will be considered for inclusion.

Standards-Based Mathematics

(Continued from page 14)
achieve these goals. The new math used mathematical structure and the standards-based programs used mathematical problems that had a real-world context. The analysis of this statement and how it played out could be the subject of a semester long analysis of the history of mathematics education from the Sputnik age to today. It also provides a frame of reference for discussions about the role of mathematicians in mathematics teacher education and curriculum development.

Here are some more tasks we could assign our graduate students if they had *Standards-Based School Mathematics Curricula: What are They? What do Students Learn?* Almost all of the 12 programs were designed in response to a NSF call for proposals. One could ask to what degree the programs addressed the NSF guidelines. What goals did each program establish for itself? Did they attempt to measure all of these goals? How did they measure these goals? In what ways was the instrumentation appropriate or inappropriate? How did the programs attempt to have a control group? In what ways were their efforts problematic?

Our students could also examine the mathematics in these programs. Each program presents some mathematics that is representative of its curriculum. In many ways, these examples of what standards-based mathematics can look like provide a common basis for discussions of what good mathematics is.

And, for us as mathematics teacher educators, there are many implications for our work. One key issue in evaluating the evaluation results reported by the programs is to what degree did teacher effectiveness and loyalty to the curriculum impact the results? All these programs required, to a greater or lesser degree, professional development in both mathematics and pedagogy. What role do we play in providing this professional development? If those of us who prepare mathematics teachers prepare them to deliver standards-based teaching no matter what program they teach (even when teaching _ _ _ _ _ Math), how will those evaluating the impact of mathematics curriculum separate the effects of the content of the program from the pedagogy of the program?

As I read *Standards-Based School Mathematics Curricula: What are They? What do Students Learn?* by Senk and Thompson, I kept finding more and more questions that I wanted to discuss with my colleagues or have my students explore. This book is a valuable resource for a mathematics teacher educator's bookshelf, but not necessarily for what it

"...I kept finding more and more questions that I wanted to discuss with my colleagues or have my students explore."

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2004

January 7-10	MAA-AMS Joint Meeting - Phoenix
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April 19-21	NCSM Annual Conference - Philadelphia
April 19-21	NCTM Research Presession - Philadelphia
April 21-24	**NCTM Annual Conference - Philadelphia**
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