Summer 2008
Volume 17, Issue 3

Connections

Inside this Issue

Association of Mathematics Teacher Educators
http://www.amte.net

President's Column

Mathematics Teacher Preparation in the Limelight: Recommendations from Recent National Reports

Jennifer M. Bay-Williams, University of Louisville

Certainly 2008 marks a year of focus on the mathematics preparation of teachers. As one of the presessions at the AMTE Annual Conference in January 2008, Tom Bassarear and Frank Lester attracted a large number of mathematics teacher educators to a session titled, "Mathematical Preparation of Elementary Teachers." In breakout groups, participants toiled with four focus questions: *What do we want our students to learn with regard to both content knowledge and process knowledge? Is there value in having students examine children's thinking as they learn the mathematics? What attitudes and beliefs about mathematics, about learning, and about teaching influence students' ability to learn the mathematics? What research should be undertaken to document the appropriateness and effectiveness of the courses?* Of course, AMTE has been thinking hard about mathematics teacher preparation since its inception, with two of our organizational purposes being to "promote effective mathematics teacher education programs and practices" and to "advocate for effective policies and practices related to mathematics teacher education" (AMTE Constitution, Article III, revised Spring 2008).

The months ahead were to bring, and continue to bring, attention from various national and international organizations. Even before the year started, in December 2007, the US TEDS Project released a report of its first international assessment of the mathematics preparation of teacher candidates titled, *The Preparation Gap: Teacher Education of Middle School Mathematics in Six Countries* (downloadable copy available at http://usteds.msu.edu/related_research.asp) This study reports "US [middle school teachers'] performance lagged behind scoring anywhere from the middle of the six countries (in statistics) to almost three fourths of a standard deviation below the international average in functions" (US TEDS, 2007, p. 1). The study concludes that the differences in middle school students' achievement may not be due only to an underperforming curriculum, but to a "preparation gap" – meaning US teachers are not adequately prepared in mathematics. This initial study was followed in the spring of 2008 by a much larger study gathering data from about 100 colleges/universities (and more campuses to be sampled in 2009). Perhaps your university or college is among the ones randomly selected for this study. As President of AMTE, I serve on the US TEDS-Mathematics advisory panel, along with other AMTE members, **Skip Fennell, Jeremy Kilpatrick,** and **Edward A. Silver**. This research will be the focus of the opening session of the AMTE Annual Conference, February 5-7, Orlando, Fl.

Second, the National Mathematics Advisory Panel Report (*Foundations for Success: Report of the National Mathematics Advisory Panel)*, has generated discussion about teacher education. As noted in the previous newsletter, AMTE prepared a Press Release about the report, available for download from our home page (http://www.amte.net). In May, the Conference Board of Mathematical Sciences (CBMS), of which AMTE is a member, accepted the task of planning a Forum to move forward on selected recommendations from the NMP report. One of the four themes of the Forum is *Teachers and Teacher Education*. AMTE has provided input in the planning of this Forum and will be sending a team to represent AMTE at the event, planned for October 6–7, 2008, Washington, D.C.

(Continued on page 4.)

AMTE's Early Career Award

The Board of Directors of the Association of Mathematics Teacher Educators (AMTE) has established an **Early Career Award**. The Early Career Award will be given on an annual basis, and the recipient will be recognized at the annual meeting of the AMTE. The purpose of this award is to recognize a mathematics teacher educator who, while early in his or her career, has made distinguished contributions and shows exceptional potential for leadership in one or more areas of teaching, service, or scholarship.

Eligibility: The nominee should be a mathematics teacher educator practicing in the field no later than 10 years after receipt of a doctoral degree. We invite nominations that highlight an individual's innovative contributions in one or more of the areas of teaching, service, or scholarship.

Teaching: Contributions in the area of teaching pre-service or in-service mathematics teachers may include one or more of the following areas:

a. Implementation of effective and innovative teaching practices.
b. Demonstration of innovative teaching methods (e.g. publications, materials, video).
c. Recipient of awards in teaching from department, college, university or national entities.

Service: Contributions in the area of service to mathematics teacher education may include one or more of the following areas:

a. Active participation in advancing the development and improvement of mathematics teacher education (e.g., membership and leadership roles in state, national, and international organizations).
b. Active promotion and participation in activities promoting quality mathematics teacher education (e.g., creator of programs, coordinator of programs, author of and participant in grants, conferences, symposia, academies).
c. Active participation in the governmental and political areas to promote and protect beneficial legislation, to promote better awareness, or to build better communication.
d. Active promotion and participation in school-university-community-government partnerships that have advanced mathematics teacher education at the local, state, or national level.
e. An unusual commitment to the support of mathematics teachers in the field (e.g., distinctive mentoring experiences).

Connections *is published three times a year: fall, spring, and summer. The Editorial Board will consider a wide variety of types of submissions. Each submission is reviewed by the editorial board for relevance to the AMTE membership and for quality of work. For more information on the types of submissions sought, see http://www.amte.net. Please direct all comments, questions, or submissions to the editor at lstalling@kennesaw.edu or 770-420-4477.*

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AMTE's Early Career Award *(cont.)*

Scholarship: Contributions in the area of scholarship to mathematics teacher education may include one or more of the following areas:

a. Dissemination of research findings offering unique perspectives on the preparation or professional development of mathematics teachers.
b. Publication of materials useful in the preparation or continuing professional development of mathematics teachers.
c. Design of innovative pre-service or in-service programs.
d. Contribution of theoretical perspectives that have pushed the field forward.

Documentation required for Early Career Award:

a. Current vita of the nominee.
b. Letter of nomination documenting the nominee's eligibility for the award.
c. Three letters of support for the nomination from individuals knowledgeable of the nominee's contributions relative to one or more of the criteria stated above.
d. Evidence of at least three contributions of the nominee's teaching, service, or scholarship in mathematics education in one or more areas as outlined above.

Nomination Process:

AMTE members can nominate a mathematics teacher educator who meets the criteria for eligibility. Self-nominations will not be considered. The three areas of teaching, service, and scholarship shall be weighted equally in the evaluation of the recipient of the award. Nominees do not need to demonstrate exceptional work in every area, and may be considered for exemplary work in only one area. Nomination materials should include those stated in each section above. The nomination materials should be sent to:

Nadine Bezuk
c/o Mike Klass
ATTN: AMTE Nomination
6475 Alvarado Road, Suite 206
San Diego, CA 92120

Please be sure that all items in the nomination materials are clearly labeled with the name of the nominee.

Deadline for Nomination: Complete nomination packets should be submitted by October 15.

Procedure for Review of Materials: The AMTE Awards Committee, a seven member committee, will review the materials to select the award recipient. Nominations will be reviewed by the committee beginning September 20th. A decision will be made by December 1, announced to the Board of Directors, and communicated to the award recipient so that the person can have time to make arrangements to attend the AMTE meeting in January.

The Early Career Award recipient will be recognized at the annual AMTE meeting. AMTE Early Career Award recipients will be asked to contribute to the AMTE community during the year following this recognition in two ways:

- The recipient will contribute an article for the Summer *AMTE Connections* Newsletter.
- The recipient will lead a mentoring session for other early career mathematics education faculty at the subsequent annual AMTE meeting.

For example, the recipient of the 2009 Early Career Award will contribute an article to the Summer 2009 issue of *AMTE Connections* and will lead a session at the 2010 AMTE Conference.

The purpose of this award is to recognize a mathematics teacher educator who has made distinguished contributions and shows exceptional potential for leadership in one or more areas of teaching, service, or scholarship.

(Continued from page 1.)

President's Column

Finally, the National Council on Teacher Quality (NCTQ) released a report in June titled, *No Common Denominator: The Preparation of Elementary Teachers in Mathematics by America's Education Schools* (NCTQ, 2008). If you have not already read or heard of this report, I recommend reading at least the Executive Summary. As president of AMTE, I was invited to the release of the report. The Report includes a specific recommendation about the work of AMTE:

> The Association of Mathematics Teacher Educators (AMTE) should organize mathematicians and mathematics educators in a professional initiative and charge them with the development of prototype assessments that can be used for course completion, course exemption, program completion, and licensure. These assessments need to evaluate whether an elementary teacher's understanding of concepts such as place value or number theory is deep enough for the mathematics demands of the classroom. They should be clearly differentiated from those assessments one might find in an elementary or middle school classroom. (NCTQ, 2008, p. 16)

This report, like the others mentioned here, addresses perceived weaknesses in the mathematics preparation of teachers, in this case elementary teachers, and makes recommendations for improving the content knowledge of elementary teachers. The report is informed by a study of the mathematics preparation offered to elementary teachers at 77 institutions, of which 67 failed to pass the bar set by these researchers. There are some important points in this report. In my opinion, those are that (1) General mathematics courses are not adequate for preparing elementary teachers, mostly because they do not address the content needed for teaching; (2) algebra is not covered well in content courses for elementary teachers; (3) Field experiences at the elementary level should focus on the mathematical understandings of students.

The report, and related research, however falls short in several areas, one noted by Association of American Colleges of Teacher Education (AACTE) being the poorly designed research methodology (their reaction is available at aacte.org). First, **we need research that focuses on outcomes and predictability of effective teaching**. While the report notes that the field does not know how much or what type of mathematics content makes a difference, the researchers base their work on their assumptions of *how much* and *what type* of mathematics should be learned. Second, a concern we all have is about qualified teacher educators. In other words, **who is teaching the teachers?** The report mentions the need for mathematicians who "appreciate the tremendous responsibility inherent in training the next generation of teachers," but in many mathematics departments, these courses are staffed by a rotation of faculty, regardless of their interest or knowledge in elementary mathematics.

Finally, and most importantly, for us to consider, is **Should AMTE develop content assessments for elementary teachers?** Questions that come to mind include: What organizations would need to be involved in order to have "buy in" among mathematicians, mathematics educators, and policy makers? How would we develop an instrument that would have some predictability, either related to teacher practice or to student achievement (preferably both)? Is it premature to create such an assessment when little is known about what content or how much content makes a difference? These considerations will be part of conversations at the annual AMTE conference in Orlando, as Julie Greenberg, author of *No Common Denominator*, is planning a session to facilitate such a conversation.

AMTE can and should be involved in these important initiatives to determine what content teachers need and how to be sure that preparation programs can effectively accomplish this task. At a time when reports from various places are pointing out weaknesses in teacher preparation, it is important that AMTE advocate for the effective preparation of teachers, as well as share the wealth of knowledge we do have about what works in teacher preparation. Our monographs and conferences, among other things, provide a great source for learning about effective practice in the preparation of mathematics teachers at all levels.

AMTE can and should be involved in these important initiatives to determine what content teachers need and how to be sure that preparation programs can effectively accomplish this task.

Thanks to Texas Instruments for supporting this issue of AMTE Connections.

Setting Tasks Appropriately

Charles Vonder Embse, Central Michigan University

Of all the teaching maxims I live by, "Teaching is not Telling" is my most important and challenging personal goal. My intention is to have my students "discover" nearly every mathematical principle and concept that they encounter in my classroom through the guided discovery learning method. In my work with pre-service teachers, my intention is to have them come to understand this guided discovery method of teaching by modeling and building their own discovery lessons. Each time I create a model for my pre-service students or an actual discovery lesson for mathematics students, the creative process always focuses more on *setting the discovery task appropriately* rather than finding appropriate tasks.

The curriculum is full of wonderful and critically important mathematical tasks. The real art of teaching in this age of discovery learning — using technology as a valuable instructional tool — is how to frame the task so that most, if not all, students will arrive at the lesson's objective without being told what to discover or giving up in frustration. During all my years of teaching with technology, graphing calculators, dynamic geometry systems and CAS systems, setting the task in an appropriate way has become my largest challenge and, as you might expect, my greatest sense of accomplishment when it works well.

At Central Michigan University, we are in the process of a complete revision of our Secondary Mathematics Education program. To this end, we created a series of courses designed to help our students understand the connections between the school mathematics they will teach and collegiate mathematics they are currently taking as mathematics majors.

In particular, I have been teaching the course called Problem Solving-Based Geometry Teaching for Secondary Mathematics. One of our primary goals for this course is to break the old paradigm that new teachers will teach exactly the way they have been taught in the past. Hence, the major focus on guided discovery learning. Most of my students have never experienced this technique prior to enrollment in these courses. Because they lack experience, a good portion of the course must be dedicated to modeling the discovery learning process. The nature of the geometry-based course I am working with lends itself well to discovery learning, especially given that we are using interactive graphing capabilities for the computer and hand-held devices. At Central Michigan, we use the TI-Nspire™ CAS hand-held and TI-Nspire CAS computer software tools to facilitate guided discovery.

In the example that follows, I illustrate how to use the guided discovery model to set appropriate tasks.

Pythagorean Theorem Investigation

Consider the following task for students:

> Given scalene triangle ABC with squares constructed externally on each side, drag the triangle by its vertices and investigate relationships that seem to be true all the time. Explain your reasoning.

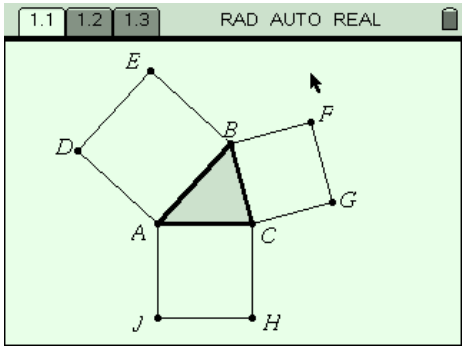

Figure 1

The primary lesson objective for this task is for students to discover Euclid's Proposition 48, if the sum of the areas of the squares constructed on two sides of a triangle is equal to the area of the square on the third side, then the triangle is a right triangle. This is the converse of the Pythagorean Theorem. While the teacher may have a clear expectation that students will automatically think about area relationships and proceed directly toward this objective, the nature of the task that was set makes this progression of thought for students much less "automatic." This is the type of "leap" of reasoning that leads students to say things like "Just tell me what to discover, and I will find it!"

What is a better way to ask this question so that students will be better able to move toward the learning objective for this lesson? Here is an alternate statement of the task.

> Given scalene triangle ABC with squares constructed externally on each side, drag the triangle by its vertices and investigate

(Continued on page 6.)

(Continued from page 5.)

Setting Tasks Appropriately

relationships between and among the areas of the squares as the triangle is changed. Explain your reasoning.

This statement leads students more directly toward the area relationships that are the focus of the objective, but does not "give away" the actual relationship that we want them to discover.

A statement of the task that would *not* be appropriate for discovery learning is:

Given scalene triangle ABC with squares constructed externally on each side, show that when the area of two of the squares adds up to the third square, that triangle ABC is a right triangle. Explain your reasoning.

Consider this example from this same unit on the Pythagorean Theorem:

Given scalene triangle ABC with squares constructed externally on each side, construct the altitudes to each side of triangle ABC. Drag the triangle by its vertices and investigate relationships that always seem to be true as the triangle is changed. Explain your reasoning.

This statement is too general for most students to move in the intended direction. A slight modification of the task statement should help.

Given scalene triangle ABC with squares constructed externally on each side, construct the altitudes to each side of triangle ABC. Extend these altitudes so that they dissect the three squares into six rectangles. Drag the triangle by its vertices and investigate relationships that always seem to be true as the triangle is changed. Explain your reasoning.

This statement gives students a better frame of reference for the intended learning objective without giving away the point of the exploration. An even better statement of the task might be:

Given scalene triangle ABC with squares constructed externally on each side, construct the altitudes to each side of triangle ABC. Extend these altitudes so that they dissect the three squares into six rectangles. Drag the triangle by its vertices and investigate relationships that always seem to be true as the triangle is changed. Explain how what you found directly relates to the Pythagorean Theorem. Explain your reasoning.

An *inappropriate* statement of this task would be:

Given scalene triangle ABC with squares constructed externally on each side, construct the altitudes to each side of triangle ABC. Extend these altitudes so that they dissect the three squares into six rectangles. Compare the areas of these six rectangles. Drag the triangle by its vertices to confirm your findings.

This final statement goes too far toward the objective, depriving students of the opportunity to discover the property on their own, rather than being told.

Discussion of the Investigation

I give my students the following model (Figure 3) for lesson development as a general outline for their thinking.

The Curricular Objectives drive the creation of the Guided Exploration Activity. During the Student Exploration and Investigation phase, students develop conjectures that relate to the curricular objectives as well as other collateral or unexpected conjectures based on the construction or activity from the Guided Exploration Activity or other conjectures that surface during the exploration. Each conjecture then needs to be verified as stated or modified and restated to judge its validity. Once the "data gathering" phases are complete (i.e., conjectures and verifications), an inductive conclusion is reached. It is the teacher's job to guide this whole process toward the Curricular Objectives that form the "backbone" of the lesson. The last step is to create a deductive proof of the inductive generalization of what was discovered in the exploration. However, in some cases, this last step may not be used for a variety of reasons including difficulty for students or timing of the lesson within a series of lessons.

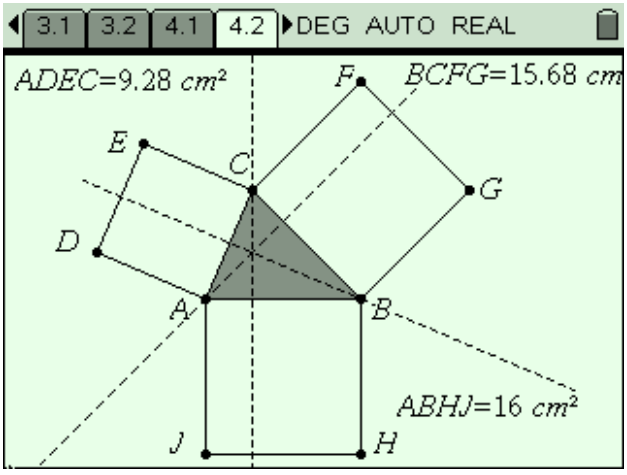

Figure 2

(Continued from page 6.)

Setting Tasks Appropriately

I fully expect and encourage a variety of conjectures during the student exploration phase. Even though I try to focus the task so that the intended learning objective will be discovered by my students, it is always the case that students come up with other interesting and profitable conjectures that complement or are peripheral to the intended goal. This creates the richness in my classroom that I desire and encourage. However, I still have a learning objective in mind for that lesson, and my role as classroom facilitator means that I must guide the students toward that goal at the conclusion of the lesson. Bring the group's thinking to bear on the objective completes the teaching episode and give me a chance to make important connections between other conjectures that came out of the explorations.

Conclusion

Preparing pre-service teachers to teach mathematics in ways we know produce better student understanding and sense-making in the classroom means that we must prepare them to teach by the guided discovery method. My biggest challenge is to instill in these prospective teachers the understanding of and the ability to create tasks that appropriately challenge and motivate their future students. Task development takes practice. You do not get it right the first time nor do you get it right every time. But, without conscience attention to setting and refining appropriate tasks, preservice teachers will have little chance to become effective discovery learning teachers themselves.

Task development takes practice. You do not get it right the first time nor do you get it right every time.

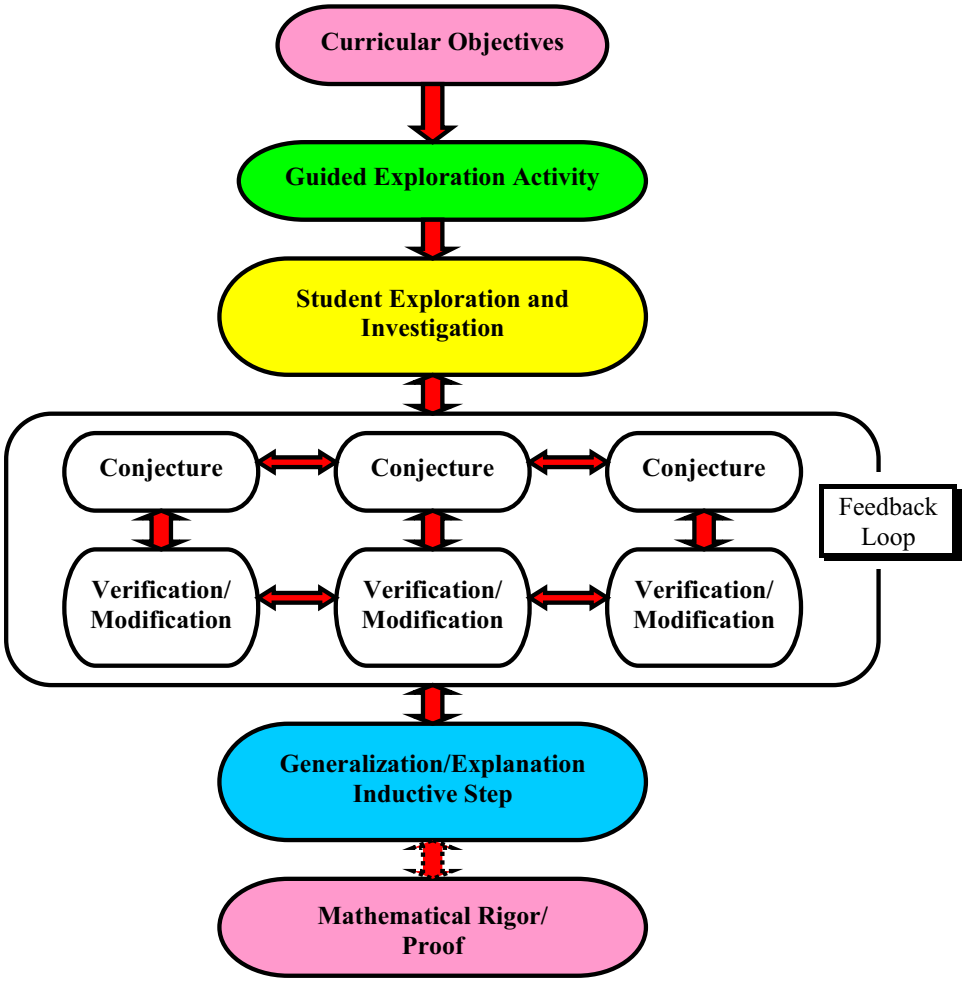

Figure 3

AMTE Affiliate News

Pennsylvania Association of Mathematics Teacher Educators

PAMTE has had a successful second year with a current membership of 67 mathematics educators from across the state. Lynn Breyfogle, Membership Chairperson, has been diligent in recruiting efforts and in the design of a membership brochure. The organization's website is up and running and can be viewed at http://www.pamte.org. Also, our first newsletter was published online in the spring. Many thanks to Jim Preston, Webmaster and Mary Lou Metz, Newsletter Editor.

Elections were held in April for the positions of Secretary and two Delegates-at-Large. The results were: Melissa Boston, Duquesne University, Secretary; Mary Ann Matras, East Stroudsburg University Delegate-at-Large public institution; and Jason Silverman, Drexel University, Delegate-at-Large private institution. Steve Williams (Lock Haven University) has been appointed AMTE and PCTM representative. In addition, Nina Girard (University of Pittsburgh at Johnstown) began her term as new PAMTE President, with Jane Wilburne (Penn State-Harrisburg) now serving as Past President. Officers whose terms did not expire are Janet Walker, Indiana University of PA, Treasurer; and Mike Long, Shippensburg University, Delegate-at-Large. We would like to acknowledge and thank outgoing Board members Winnie Peterson (Kutztown University), Tom Evitts (Shippensburg University), and Debbie Gochenaur (Elizabethtown University).

The next PAMTE event will be held in conjunction with the PCTM Annual Meeting in the Pocono Mountains to be held November 5-7, 2008.

PAMTE held its second annual symposium May 15-16 at Shippensburg University. The symposium included plenary session speakers, roundtable discussions, and informal dining opportunities—all providing participants with an opportunity to network and exchange information regarding research, teaching, and programs for elementary and secondary mathematics pre- and in-service teachers. Thursday plenary session speakers were from the Greater Philadelphia MSP and Drexel University's Math Forum. The Friday plenary sessions featured Glen Blume and Rose Zbiek of Penn State speaking on publishing work for research and practitioner audiences, Steve Williams from Lock Haven University, and a representative from the PA Department of Education's Bureau of Professional Education who addressed certification program changes for pre-service teachers in PA. In all, thirty-two members attended, representing seventeen universities. Special thanks to Mike Long of Shippensburg University for his organizational efforts in planning the symposium.

The next PAMTE event will be held in conjunction with the PCTM Annual Meeting in the Pocono Mountains to be held November 5-7, 2008. There will an invited speaker session for PAMTE members, as well as a PAMTE strand of sessions open to all math educators. In addition, PAMTE is helping to sponsor a pre-service teacher day as part of the conference. The planned activities will attempt to engage pre-service teachers as much as possible in the learn/reflect process. The overall goal is to expose them to the importance of professional organizations and attending conferences for continued professional development, as well as make them feel welcomed as beginning professionals.

We continue to be excited and charged with the growth and energy of this state organization, and we welcome any questions or suggestions. Feel free to contact President Nina Girard at nina@pitt.edu.

AMTE congratulates Miriam Leiva winner of TODOS's Iris Carl Memorial Leadership and Equity Award!

AMTE's 2009 Annual Conference News

Make your plans now to attend the 2009 AMTE Annual Conference in Orlando, Florida on February 5-7, 2009. Features of this year's conference schedule include the following:

- The preconference sessions will be held on Thursday morning with the regular conference beginning after lunch on Thursday.
- A full slate of sessions will begin about 1:00 p.m. on Thursday.
- The opening general session will begin about 5:00 p.m. on Thursday followed by dinner on your own.
- The business meeting will occur in conjunction with Saturday's lunch.
- The conference will end by mid-afternoon on Saturday.

As usual, all meals on Friday and through lunch on Saturday are included in your registration fee.

The conference site is the Orlando Airport Marriott Hotel. The hotel room rate is $159 for a single or double room. The deadline for reservations is December 5, 2008 or when the room block is full. Filling the rooms at the conference hotel helps by reducing some of the conference expenses paid by AMTE, so help support AMTE by staying at the conference hotel. Hotel reservations can be made using the link on the AMTE website or by calling Marriott reservations at 800-380-6751.

Conference registration is available online at the AMTE website. The registration deadline is December 5, 2008. Early registration at reduced rates is available through October 15, which is also the registration deadline for speakers.

We hope to see you in Orlando in February!

2009 Annual Conference Deadlines:

Early Registration: October 15, 2008
Registration for Speakers: October 15, 2008
Regular Registration: December 5, 2008
Deadline for Hotel Reservations: December 5, 2008
Conference Dates: February 5-7, 2009

Announcements from NCTM

NCTM's Mathematics Education Trust (MET) has announced a new **K–8 Preservice Teacher Action Research Grant** to provide financial support for action research conducted as a collaborative by university faculty, preservice teacher(s), and classroom teacher(s) seeking to improve their understanding of mathematics in K–8 classroom(s). For 2009–10, a grant up to a maximum of $3,000 will be awarded.

MET also offers the **Prospective Teacher NCTM Conference Attendance Awards** (Prospective Teacher Grades K–12)**.** Grants of up to $1,200 are provided for travel and subsistence expenses to help support attendance at an NCTM annual or regional meeting by full-time undergraduate students who are NCTM student members and are preparing to be precollege mathematics teachers. Application packets for both these funding opportunities must be postmarked by November 14, 2008. For more information about how to apply, visit http://www.nctm.org/met.

AMTE's Excellence in Teaching Award

Description of Awards

The Board of Directors of the Association of Mathematics Teacher Educators has established an Award for Recognition of Excellence in Mathematics Teacher Education, to be awarded annually to a mathematics teacher educator of national recognition at the Annual Meeting of the AMTE. The purpose of this award is to recognize excellence in each area of mathematics teacher education (teaching, service, research). Areas of focus for the award will rotate each year. Awards will be rotated among Excellence in Teaching Mathematics Teacher Education (2006 winner: Randy Philipp; next award in 2009), Excellence in Service to Mathematics Teacher Education (2007 winner: Bill Bush; next award in 2010), Excellence in Scholarship in Mathematics Teacher Education (2008 winner: Frank Lester; next award in 2011). The winner will give a featured presentation at the AMTE Annual Conference in the year they receive the award.

Criteria

The nominee should be an active member of the mathematics teacher education community and have at least five years of commitment to mathematics teacher education. He or she should have made unique contributions to the field of mathematics teacher education. Unique contributions should be considered in the broadest sense possible.

The Excellence in Teaching Award is intended to recognize a colleague for a unique contribution to the pedagogy of mathematics teacher education.

Award for Excellence in Teaching in Mathematics Teacher Education

The Excellence in Teaching Award is intended to recognize a colleague for a unique contribution to the pedagogy of mathematics teacher education. We invite nominations that highlight an individual's innovative practices in teaching. The following are examples of demonstrations of innovations in teaching preservice or inservice mathematics teachers:

a. Implementation of effective and innovative teaching practices.
b. Demonstration of innovative teaching methods (e.g. publications, materials, video)
c. Recipient of awards in teaching.

Documentation required for Excellence in Teaching in Mathematics Teacher Education:

a. Letter of nomination highlighting the innovative practices of nominee (no self nominations will be considered)
b. CV (highlighting teaching publications and presentations)
c. Documentation of innovative practice (e.g. publication, materials, video are some examples)
d. Documentation of effectiveness of innovative practice (e.g. evidence that preservice teachers apply ideas when teaching)
e. Three letters of support from former students – addressing how the innovative teaching impacted their learning about mathematics teaching
f. One letter of support from a peer who has witnessed the individual's teaching or has had former students of the nominee in their own classes and noted the impact of the nominee's teaching on those students.

Complete information on AMTE awards is available at http://www.amte.net.

Publication Announcement:

Papers from the 2007 National Conference on Doctoral Programs in Mathematics Education

The presentations at the recent National Conference on Doctoral Programs in Mathematics Education have been published by the Conference Board of the Mathematical Sciences. The book entitled *U. S. Doctorates in Mathematics Education: Developing Stewards of the Discipline* was edited by Robert Reys and John Dossey and is in the Issues in Mathematics Education Series published by the American Mathematical Society and the Mathematical Association of America. Details on the book are available at the AMS online bookstore at http://www.ams.org/bookstore-getitem?item=cbmath-15

CITE CONTEMPORARY ISSUES IN TECHNOLOGY AND TEACHER EDUCATION

The CITE Journal is an online, peer-reviewed journal, established and jointly sponsored by five professional associations (AMTE, ASTE, NCSS-CUFA, CEE, and SITE). This is the only joint venture of this kind in the field of teacher education. Each professional association has sole responsibility for editorial review of articles in its discipline.

CITE's Current Featured Mathematics Education Article:

Virtual Manipulatives Used by K-8 Teachers for Mathematics Instruction: Considering Mathematical, Cognitive, and Pedagogical Fidelity

Patricia S.Moyer-Packenham, Utah State University

Abstract:

This study examined teachers' uses of virtual manipulatives across Grades K-8. Researchers analyzed 95 lesson summaries where classroom teachers described their uses of virtual manipulatives during school mathematics instruction. The findings indicated that the content in a majority of the lessons focused on two NCTM (2000a) Standards: Number & Operations and Geometry. Virtual geoboards, pattern blocks, base-ten blocks, and tangrams were the applets used most often by teachers. The ways teachers used the virtual manipulatives most frequently focused on investigation and skill solidification. It was common for teachers to use the virtual manipulatives alone, or to use physical manipulatives first, followed by virtual manipulatives. One important finding of this study was that teachers used the virtual manipulatives during the main portion of their lessons when students were learning mathematics content. These results represent an initial exploration of teachers' current use of virtual manipulatives in K-8 classrooms.

CITE has a special interest in articles describing the development of instruments or methods to measure TPACK.

CITE Call for Papers:

"Technology, Pedagogy, and Content Knowledge"

Scholarly articles may report research describing
(a) teachers or preservice teachers who demonstrate "TPACK" (formerly known as TPCK) in the K-12 classroom;
(b) teachers/preservice teachers in the process of developing TPACK; or
(c) teacher education programs with demonstrated success in developing TPACK in their graduates.
We have a special interest in articles describing the development of instruments or methods to measure TPACK. Theoretical articles will also be reviewed, especially if they synthesize the research or development of TPACK thinking in mathematics education.

Manuscripts should be submitted no later than October 15, 2008.

Christine Browning & Mark Klespis
Mathematics Education Section Editors
christine.browning@wmich.edu
klespis@shsu.edu

Upcoming Conferences

Online at
http://www.amte.net

Membership & Renewal

Position Papers

Resources

Announcements

Award Information

Other Opportunities

2008

October 2-3	NCTM Regional	Oklahoma City, Oklahoma
October 16-17	NCTM Regional	Cleveland, Ohio
November 6-7	NCTM Regional	Reno, Nevada
November 13-15	SSMA	Raleigh, North Carolina

2009

January 5-8	MAA-AMS Joint Meeting	Washington, DC
February 5-7	AMTE	Orlando, Florida
April 22-25	NCTM	Washington, DC
July 19-24	PME 33	Thessaloniki, Greece
August 2-6	Joint Statistical Meeting	Washington, DC
September 24-27	PME-NA	Atlanta, Georgia

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Reminder: The date on the label indicates the month that your membership is due to expire.