

Journal of Mathematics Education at Teachers College

Spring – Summer 2010
Inaugural Issue

A CENTURY OF LEADERSHIP IN
MATHEMATICS AND ITS TEACHING

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The *Journal of Mathematics Education at Teachers College* is a publication of the
Program in Mathematics and Education at Teachers College
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This issue's cover and those of future issues will honor past and current contributors to the Teachers College Program in Mathematics and Education. Photographs are drawn from the Teachers College archives and personal collections.

This issue honors NCTM 2010 Lifetime Achievement Medalist, Dr. Henry O. Pollak, who has completed 22 years as a member of the Program in Mathematics and Education at Teachers College. Dr. Pollak has contributed so much to the mathematical preparation of the Program's graduates and to the communities of mathematics and mathematics education professionals in the United States and throughout the world.

David Eugene Smith, also pictured on the front cover, was the founding professor of the Teachers College Program in Mathematics and Education. Like Dr. Pollak, Professor Smith was widely respected by both mathematicians and educators.

Aims and Scope

The *JMETC* is a re-creation of an earlier publication by the Teachers College Columbia University Program in Mathematics and Education. As a peer reviewed, semi-annual journal, it is intended to provide dissemination opportunities for writers of practice-based or research contributions to the general field of Mathematics Education. Each issue of the *JMETC* will focus upon an educational theme. Themes planned for the 2010-2011 issues are: *Teacher Education, International Education, Curriculum, Technology, and Equity*—all centered upon mathematics and its teaching. The *JMETC* will have a distinctive niche in the world of education publishing. Our readers are educators from pre K-12 and college and university levels, and from many different disciplines and job positions—teachers, principals, superintendents, professors of education, and other leaders in education.

Manuscript Submission

We seek conversational manuscripts (2500-3000 words in length) that are insightful and helpful to mathematics educators. Articles should contain fresh information, possibly research-based, that gives practical guidance readers can use to improve practice. Examples from classroom experience are encouraged. Articles must not have been accepted for publication elsewhere. All manuscripts may be submitted electronically at www.tc.edu/jmetc. This system will help keep the submission and review process as efficient as possible.

Abstract and keywords. All manuscripts must include an abstract with keywords. Abstracts describing the essence of the manuscript should not exceed 150 words. All inquiries should be sent to Ms. Krystle Hecker, P.O. Box 210, Teachers College Columbia University, 525 W. 120th St., New York, NY 10027.

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Journal of Mathematics Education at Teachers College

Call for Papers

The “theme” of the fall issue of the *Journal of Mathematics Education at Teachers College* will be *International Mathematics Education*. This “call for papers” is an invitation to mathematics education professionals, especially Teachers College students, alumni and friends, to submit articles of approximately 2500-3000 words describing research, experiments, projects, innovations, or practices related to international or comparative mathematics education. Articles should be submitted to www.tc.edu/jmetc by September 1, 2010. The fall issue’s guest editor, Dr. Juliana Connelly, will send contributed articles to editorial panels for “blind review.” Reviews will be completed by October 1, 2010, and final drafts of selected papers are to be submitted by November 1, 2010. Publication is expected in late November, 2010.

Call for Volunteers

This *Call for Volunteers* is an invitation to mathematics educators with experience in reading/writing professional papers to join the editorial/review panels for the Fall 2010 and subsequent issues of *JMETC*. Reviewers are expected to complete assigned reviews no later than 3 weeks from receipt of the blind manuscripts in order to expedite the publication process. Reviewers are responsible for editorial suggestions, fact and citation checking, and identification of similar works that may be helpful to contributors whose submissions seem appropriate for publication. Neither authors’ nor reviewers’ names and affiliations will be shared; however, editors’/reviewers’ comments may be sent to contributors of manuscripts to guide further submissions without identifying the editor/reviewer.

If you wish to be considered for review assignments, please request a *Reviewer Information Form* from Ms. Hecker. Return the completed form to Ms. Krystle Hecker at JMETS@tc.columbia.edu or Teachers College, Columbia University, 525 W 120th St., Box 210, New York, NY 10027.

Looking Ahead

Anticipated themes for future issues are:

Spring 2011	Curriculum
Fall 2011	Technology
Spring 2012	Equity
Fall 2012	Leadership
Spring 2013	Psychology

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NOTES FROM THE CLASSROOM

To meet the requirements for New York State certification in the teaching of secondary school mathematics, student teachers complete placements in both a middle school and a high school. In addition to working in the classroom, they maintain journals and post them online. The journals provide an opportunity for student teachers to reflect on their practice and to learn from others. In addition, student teachers attend weekly seminars at the College. By doing so, they become members of a community of practitioners. NOTES FROM THE CLASSROOM contains excerpts from the journals.

Ideas for Middle School Mathematics

Amanda Giambruno

Proving the Pythagorean Theorem

To kick off a geometry unit in the seventh grade, Kitty (another student teacher) and I co-taught a lesson on the Pythagorean theorem. Although the Pythagorean theorem is technically a seventh grade standard, most of our students were already familiar with the formula. So, in order to engage the class, we decided to lead a hands-on activity that would serve as an informal proof of a theorem they all just assumed to be true.

For the Do Now, students had to find the hypotenuse in a right triangle given the lengths of its legs. This was meant to elicit $a^2 + b^2 = c^2$ right at the onset of the period. After a brief discussion and some formal note taking, we spent the second half of the period exploring the question: “Why does the formula work?” Each group received an envelope of materials containing a placemat that would serve as workspace, small triangle pieces, and small square pieces. The purpose of the activity was for students to manipulate the pieces in such a way as to identify the area of the blank space left over after removing the square (with area = c^2) in terms of a and b . In the end, through exploration and guided questioning, we hoped they would reach the following conclusion:

Area of Blank Space = Area of Square

$$a^2 + b^2 = c^2$$

Overall, we were happy with how the lesson went. While there were mixed reactions from students and not everyone made the discovery on their own, many of them experienced the sort of “aha” moment we were striving for. Most importantly, it was something different; it gave students the opportunity to stop listening to the teacher talk, work with their hands, and think about math in an unconventional way.

It’s important to mention that this particular activity, though it only lasted about 25 minutes, required quite a bit

of preparation. Creating the materials, cutting out each of the pieces, and dividing everything into sets for each group was rather time consuming. Planning how the activity would be explained and executed also required lots of thought. It got me wondering how I’ll ever be able to pull off something like it next year when I’m on my own. I think it’s a realistic goal to plan such an activity once a week or even once every two weeks in the beginning. Then, as I become a more experienced teacher and begin to build up a library of resources, I’ll be able to do it even more frequently. Needless to say, I certainly believe that putting in the extra time to make math fun through student-driven learning and discovery is worth it. It will make my classroom a more colorful, more enriching learning environment in the long run.

Heidi Li

Encouraging Student Participation

One of the goals I had while teaching lessons this week was to encourage as many students as possible to participate in class. I believe that the best way to encourage students to participate is to show them that you are not there to critique their every step. You are there as a facilitator of their educational experience and that participation in the classroom will add richness to learning that is incomparable to anything else. Students should be taught that mistakes are welcome in the classroom and that it is just a step in the process of perfecting a skill. When students are comfortable with that and you engage the class as a community, the students sitting in the back who you rarely hear from will start speaking up.

What I have found helpful is spending time outside of class to connect with each student at an individual level to assure them that you know who they are and that they should be comfortable approaching you with any problems. If you present yourself to them as an approachable teacher rather than “the teacher at the front of the classroom”, I think they’ll be more comfortable offering ideas in class.