

Center News

Mathematics Education Center at George Mason University

Mathematics Education Faculty and Students Engaged in International Conferences

In November 2006, Mathematics Education faculty and students traveled to Merida, Yucatan, Mexico, for the annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA). The purpose of PME-NA is to promote international contacts and research and the exchange of scientific information in the field of mathematics education.

During this year's conference, Dr. Margret Hjalmarson presented a

research report titled, *The Role of Challenging Mathematics Content*, and she was a lead participant in the *Models and Modeling Working Group*. Dr. Patricia Moyer-Packenham and Dr. Johnna Bolyard, along with Mathematics Education Leadership Ph.D. students, Hana Oh, Patricia Kridler, and Gwenanne Salkind, presented a research report titled, *Representations of Mathematics Teacher Quality in a National Program*. Bolyard and Moyer-Packenham also served

as presenters for a Short Oral session titled, *The Impact of Virtual Manipulatives on Student Achievement in Integer Addition and Subtraction*.

These international experiences provide important opportunities for faculty and students to network and collaborate with mathematics education colleagues all over the world.

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Special points of interest:

- Math Ed Faculty and Students Travel Internationally
- MSP Program Evaluation Team Meets at GMU



PME-NA Conference in Merida, Mexico

(back row) Dr. Margret Hjalmarson, Gwenanne Salkind, Dr. Patricia Moyer-Packenham, Trish Kridler, Jana Parker. (front row) Dr. Johnna Bolyard and Hana Oh.

Hjalmarson - Trip to Taiwan

Dr. Margret Hjalmarson traveled to Changhua, Taiwan in November 2006 to conduct a professional development workshop for teachers and faculty at the National Changhua University of Education. The Taiwanese are interested in developing their students' problem solving and higher-order thinking abilities. Dr. Hjalmarson was invited by Dr. Ching-Kuch Chang to lead the workshop and spend time discussing mathematics education with faculty and stu-

dents at the university. The one-day workshop was a presentation of models and modeling activities developed for middle school students.

The Taiwanese teachers completed two activities and discussed assessment strategies. The first activity was a ratio problem the graduate students in Taiwan had transformed for their context. The second activity was a materials engineering

problem where students were asked to determine the average size of aluminum crystals using three different samples. Hjalmarson also participated in a seminar discussion of models and modeling theory with doctoral and master's students in mathematics education at the university. At the end of the week, she gave a lecture for faculty and students to discuss models and modeling theory.

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Lesson Study - Engaging Teachers in Problem Solving about Teaching and Learning

This past winter, Dr. Jennifer Suh worked with K-6 teachers in the Fairfax County Public Schools at Westlawn Elementary School, in Falls Church, Virginia on Lesson Study. Lesson Study is a Japanese instructional improvement strategy which involves collaborative planning and observation of live classroom lessons by a group of teachers who collect data on teaching and learning and collaboratively analyzing it (Lewis, 2002a, 2002b; Lewis & Tsuchida, 1997, 1998; Wang-Iverson & Yoshida, 2005).

Grade level teams consisting of classroom teachers, special education teachers and ESOL teachers, met with Dr. Suh to identify an instructional area for improvement and through the Lesson Study process, deepened their mathematical understanding for

teaching. This teacher-led professional development model empowered teachers as they worked collectively through the challenges they encounter in teaching their unique and diverse student population. Below are some of the teacher comments from the Lesson Study experience.

"It is so valuable to have the time to hear what others are doing and how others problem solve some of the learning issues that came up during a lesson. The lessons are stronger and the teaching language and sequence is much clearer with the collaboration" 1st grade teacher.

"I love the conversations we had about what will or won't work in a lesson (strengthening it before we teach the lesson). Making the concept map for relating fractions and decimals helped me see the

parallels and how I can relate the two units" 5th grade teacher.

"I was interested in the terms composing, decomposing, compatible way of looking at things I've taught" Kindergarten teacher.



(3rd from right) Dr. Jennifer Suh and Class

Math Education Faculty, Students and Alumni Present at NCTM 2007 Conference



GMU Faculty, Students, & Alumni (front row) Shannon Manke and Dr. Patricia Moyer-Packenham (back row) Dr. Lynn Salvo, Judy Hall, Dr. Johnna Bolyard, and Dr. John Staley

The Annual Meetings of the National Council of Supervisors of Mathematics (NCSM) and National Council of Teachers of Mathematics (NCTM) were held March 19-21 (NCSM) and March 21-24 (NCTM), 2007, in Atlanta, GA. The NCSM and NCTM annual meetings bring together mathematics educators, researchers, and teachers from all over the world. Over 15,000 attendees participated in this year's annual conference. This year's featured speaker was Thomas Friedman, the author of The World is Flat.

Several of our own Mathematics Education Leadership faculty, alumni and students presented the following sessions:

- Johnna Bolyard and Patricia Moyer-Packenham (GMU faculty) – Selecting Dynamic Technology Representations for Mathematics Teaching (NCTM)

- Patricia Kridler (Ph.D. student) – Mathematics Circles: A Way to Communicate, Connect, and Represent Problems (NCTM)
- Shannon Manke (M.Ed. Student) – Sorting for Successful Understanding (NCTM)
- Lynne Salvo (Ph.D. alumni) – The Problem Solving Journal: Rich Problems for Conceptual Understanding (NCTM)
- John Staley (Ph.D. alumni), Patricia Baltzley, and Bill Barnes - [(Science + Technology) ^ Engineering x Math] / Collaboration Project = Increase Student Achievement: Part 2 (NCSM)

Johnston Wins Spikell Award in Mathematics Education

In 2006 Dr. Mark A. Spikell, Professor Emeritus, established The Spikell Award in Mathematics Education in honor of Hy and Lillian Spikell, loving and supportive parents; children, Adam Eli and Emily Erin Spikell; and brother and sisters, Bruce Carl, Stefanie Hope and Deena Rae Spikell.

The award, currently in the amount of \$500, is given annually in the Spring semester to a Ph.D. student in Mathematics Education in the College of Education and Human Development at George Mason University. The student writes a statement describing the role of concrete/virtual manipulatives in the teaching of school-based mathematics at the elementary, middle or secondary level.

This year's winner of the Spikell Award in Mathematics Education is Christopher Johnston. Chris has experience as a classroom teacher, and more recently has worked with the National Council of Teachers of Mathematics on the development of lessons for teachers on the Illuminations website. Chris has a strong interest in the uses of technology for mathematics instruction at all levels. Chris is currently serving as a Graduate Research Assistant for Dr. Jennifer Suh. In collaboration with Dr. Suh, Chris has created several presentations and publications that focus on the uses of technology in mathematics education. Congratulations Chris!



Christopher Johnston

Bolyard Accepts Tenure-Track Math Ed Faculty Position at WVU



Congratulations Dr. Johnna Bolyard!

Dr. Johnna Bolyard has accepted the position of Assistant Professor of Mathematics Education at West Virginia University in Morgantown, WV, beginning in August 2007.

She will be joining WVU's Curriculum and Instruction department in the College of Human Resources and Education. For the past two years, Dr. Bolyard has been a Research Assistant Professor in the College of Education and Human Development at GMU. She has served as the Project Manager for the Mathematics Education Center and worked on the Math and Science Partnership Program Evaluation (MSP-PE) in collaboration with Patricia Moyer-Packenham (Co-PI) and other MEC and CEHD colleagues. In addition to her MSP-PE work, Dr. Bolyard taught courses for the Elementary

Education and Mathematics Education Programs at Mason as an adjunct professor. Dr. Bolyard has experience teaching mathematics at both the middle school and college levels and has worked as a curriculum specialist at the district level. Her research interests focus on uses of representation and technology, including virtual manipulatives, in mathematics and the development of pre-service and in-service mathematics teachers and teacher leaders. In January 2006, Dr. Bolyard received her PhD from George Mason in the Mathematics Education Leadership Program. Dr. Bolyard earned her Bachelor's degree in History and International Studies and Master's degree in Curriculum and Instruction – Secondary Mathematics from West Virginia University.

MSP Program Evaluation Team Meets at GMU



(left to right) Drs. Margret Hjalmarson and Johnna Bolyard (GMU)



(left to right) Faye Huie, Jana Parker and Patty Granfield (GMU)

On Friday, March 9th, 2007, 24 members of the Math and Science Partnership Program Evaluation (MSP-PE) team from GMU, Brown University, Vanderbilt University, and COSMOS Research Corp., met at Mason to share research experiences as part of their work on the MSP-PE NSF-funded contract.

The team meeting focused on the use of electronic survey data in several analyses of the MSP-PE and on the progress of site visits to the MSP awardees. The MSP-PE is currently gathering data at various sites all over the country to examine partnerships among schools and universities focusing on mathematics and science education. GMU's research team includes mathematics educators, mathematicians, educational psychologists, and graduate student researchers.



(left to right) Drs. Jennifer Scherer (COSMOS), Kenneth Wong and Ted Socha (Brown University)



(left to right) Drs. Anastasia Kitsantas, Dimiter Dimitrov and Patricia Moyer-Packenham (GMU)

MEL Recruiting for 2007 Math Specialist Cohort Program

The Math Specialist Leader K-8 Master's Degree Program prepares individuals for master teacher, teacher leader, content expert, and math specialist positions in K-8 school mathematics.

Students in the Math Specialist program concentration study mathematics content and mathematics pedagogy in interdisciplinary coursework in the College of Education and Human Development and the Department of Mathematical Sciences.

Students completing the program will be eligible to apply for the proposed Virginia Math Specialist Endorsement, with anti-

ipated adoption in the summer of 2007.

During 2005, the MEL program admitted the first cohort of 24 students into the new program. Faculty and program staff are currently recruiting for the Fall 2007 Math Specialist Program.



To get more information about the program contact Sherry Patterson in the Math Education Center by email: mathcntr@gmu.edu or call us at: (703-993-4789).

To Apply to the Math Specialist Program online, go to <http://admissions.gmu.edu/onapps.asp>.



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The Mathematics Education Center (MEC) is located in the Graduate School of Education in the College of Education and Human Development at George Mason University, Fairfax, VA. The MEC conducts research, provides professional development, and designs instructional materials. The MEC works in collaboration with the Mathematics Education Leadership programs at George Mason University to support the scholarly research and professional development of PhD and Master's level graduate students enrolled in the programs.



GMU Math Education Faculty