

Intersection Points

The Newsletter of the Research Council on
Mathematics Learning

Spring 2008

Volume 32, No. 3

The Research Council on Mathematics Learning seeks to stimulate, generate, coordinate, and disseminate research efforts designed to understand and/or influence factors that affect mathematics learning.

Visit us on the Web at: www.unlv.edu/RCML

President's Message
Pages 1-2

Wilson Lecture Synopsis
Pages 3

Conference Report
Pages 3 – 4

RCML Personnel
Page 4

PRESIDENT'S COLUMN

Research and Recommendations from the National
Mathematics Advisory Panel

By Pat Jordan

In April 2006, President George W. Bush established the National Mathematics Advisory Panel to make recommendations on the best use of the “scientifically-based” research to advance the teaching and learning of mathematics. The panel included leading mathematicians, cognitive psychologists, educators, and representatives from organizations associated with mathematics education and teaching. The final report included suggestions to improve mathematics achievement for all students in the United States in the areas of curricular content, learning processes, instructional practices, materials, teachers, teacher education, and assessment. By now, you have probably heard and reviewed these guidelines, at least in an abbreviated format. To order your very own copy of the report, you can check the website at www.ed.gov/MathPanel or by email at NationalMathPanel@ed.gov. You can also order a hard copy at <http://edpubs.ed.gov> or call 1-877-4ED-PUBS. The publication code for the Final Report, “Foundations for Success: Report of the

National Mathematics Advisory Panel,” is ED004204P.

One of the concerns from mathematics educators raised by the Panel’s recommendations was the limited use of only “scientifically-based” research studies as a guide for the effective teaching and learning of mathematics. As researchers in the area of mathematics education with a specific focus on the learning of mathematics at all levels, we can set a research agenda that will address the Panel’s recommendations. As we read the list of the Panel’s recommendations and the discussion that follows, we should be drawn to the questions that could be addressed effectively through strong methodology in quantitative, qualitative, or mixed methods research.

Perhaps you are interested in seeking answers to the notion that “a focus on the important effort in mathematics learning will improve outcomes. If children believe that their efforts to learn make them smarter, they show greater persistence in mathematics learning.” Another question for research might be to support or refute the statement that, “Explicit instruction for students who struggle with math is effective in increasing student learning.”

Also included in the report are specific recommendations for future research. For instance, research is needed on “early interventions capable

of strengthening mathematical knowledge, evaluates their utility in pre-kindergarten and kindergarten settings, and examines long-term effects.” Are you interested in researching how children can be taught effective strategies for estimating magnitudes of fractions and how this skill influences their understanding of rational expressions in algebra? In keeping with the mission of RCML, perhaps you seek answers to the problems that math anxiety cause students and seek successful interventions. Maybe your expertise lies in researching the influences that encourage and support African-American and Hispanic students in improving their mathematics understanding and focus on improving task-engagement and self-efficacy.

As we continue to search for cognitive mechanisms that contribute to learning disabilities and precocious learning in mathematics, perhaps we may begin to understand the sources of individual differences in children’s mathematical knowledge – whether it is within our pre-service student at the university level or elementary and middle school students. Looking at long-range research goals, you might decide to focus on the identification of early predictors for success or failure in algebra, and then work to develop interventions that support student success.

If your research has evolved around the specific mathematical knowledge and skills that are needed for effective teaching, then you might consider expanding your research to include the “relationships among teachers’ knowledge, their instructional skill, and students’ learning, and to identify the mathematical and pedagogical knowledge needed for teaching.” As always, research is needed to “create a solid basis for mathematics preparation of elementary and middle school teachers within pre-service teacher education, early-career support, and ongoing professional development programs.”

Although many of us have conducted and published research in several of the areas discussed

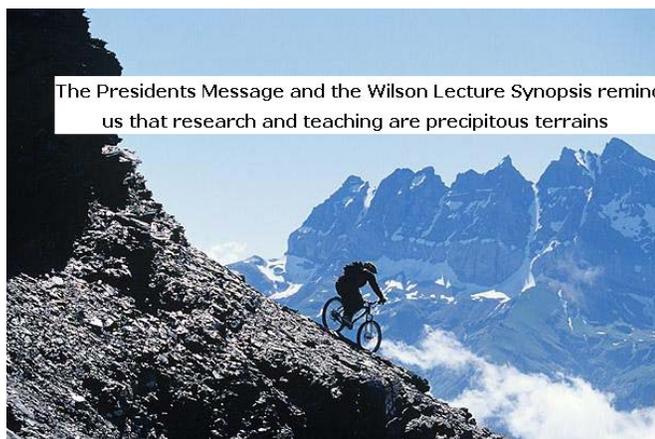
above, the use of “scientifically-based” research has precluded studies in a more qualitative arena.

As you begin to think about the impact these recommendations may have on the face of mathematics education and school mathematics, I encourage you to think in terms of the research you can conduct and how you can add to the body of work upon which the Panel has made their recommendations. Whether we agree with these recommendations or not, I believe they will have an impact on the school mathematics programs across the nation, and, perhaps, even the teacher preparation programs at the collegiate level. Working across departments at the university level, incorporating both content and teacher education, as well as working within the

PreK-12 school settings, it is imperative that we make our presence known. We must work to assure that a variety of sound research methodologies are represented throughout our research projects. We must make a difference in the ways students learn mathematics and ensure that both teachers and their students are prepared for success to “ensure our nation’s future competitiveness and economic viability.”

Our system of education was predicated on the need to ensure the preparation of a well-informed electorate including a strong sense of numeracy and quantitative literacy. Our research should make the difference in the mathematical education of all students.

Make plans to be at Berry College located in beautiful Mount Berry Georgia for the 36th annual RCML conference March 5-7, 2009.



www.berry.edu

Synopsis of 2008 Wilson Lecture

By Keith Adolphson

This year's Wilson lecture, entitled "Four Things to Share," was presented by Alan Jones, an operations analyst with the Federal Aviation Administration (FAA) in Oklahoma City. His lively and engaging talk was peppered with a gentle, wry, folksy sense of humor as he led us on a captivating journey. First, he described an example of the application of mathematics in determining a definition of "Precipitous Terrain" for the FAA. The definition is used to determine when and how airport approach directions for aircraft have to be adjusted due to the terrain features. This was followed by a description of his leisure time pursuit of successive summation equations for $\sum_1^n i^k$. Next he focused on helping us recall what's important in teaching. Including: (1) reminding us that if being in class is the most important thing for our students to be doing, teaching should be a similarly important thing for us also, (2) that our students' perceptions of our worthiness as teachers affect their learning, (3) that even though mathematics may be rich and exciting for us, on any given day, it may not be the most important thing happening in the lives of our students, and (4) summing up his views of teaching with "The most important concepts which we can impart to our students are the drive to achieve, a positive belief in one's self and the existence and goodness of a power greater than all. The rest will take care of itself." The talk was thought-provoking, entertaining, and sobering.

The PowerPoint slides and other materials presented in this year's Wilson Lecture can be found on the RCML website:

<http://www.unlv.edu/RCML/wilson.html>

RCML 2008 Conference Report

Oklahoma City, March 6-8

By Darlinda Cassel, David Boliver, Stacy Reeder,
and Juliana Utley

The motto for Oklahoma weather is, "If you don't like the weather, just wait a day or so and it will change." The motto held true for the 2008 Oklahoma City RCML conference. The few days before the conference began, the temperature was sunny and 65 degrees. Friday morning of the

conference, a weather system came through dropping the temperature (30's) and bringing snow to areas south and east of OKC. This weather front prevented many members from Texas and Arkansas from attending. In spite of the Oklahoma weather, the conference was a huge success and met RCML's charter to stimulate, generate, coordinate, and disseminate research.

The conference began with a reception followed by Dr. Anne Reynolds' keynote talk entitled, *Meaningful Mathematics for All Students: The Place of Imagery*. Dr. Anne Reynolds is an associate professor of mathematics education at Kent State University. Also, Dr. Reynolds serves as RCML's President-Elect. Her experiences as an elementary, middle school, and high school mathematics teacher, principal, and working with students with disabilities gave us insight into the importance of imagery in children's sense making of mathematics.

The fifty-two regular sessions covering a wide variety of topics began on Friday morning. Friday's lunch was followed by the business meeting conducted by President Patricia Lamphere-Jordan. Sessions continued Friday afternoon with dinner on your own.

Saturday morning sessions were followed by lunch and speaker Alan Jones. Alan Jones has a M.N.S. in mathematics from University of Oklahoma and does "mathematics" for the FAA. His talk was inspiring. He encouraged us all to continue striving to provide worthwhile mathematical opportunities for our students.

Evaluations from the conference were very positive. Many participants enjoyed the opportunity to network with colleagues as well as visit with old friends. Some of the comments were, "Networking with colleagues and talking about common projects really helps my research focus." "Networking and getting a research focus from the daily grants." "Discussions at meals were ways to network, introduce doc students to RCML, and to catch up with old friends."

Evaluations about the overall conference were also very positive. "The conference was well organized." "The speakers were good." "The conference was not hectic." "The conference provided great sessions, good food, and good conversations."

Conference report continued...

There were a couple of concerns expressed. One is that we make sure to have fish on Friday for lunch and more options for vegetarians. Another concern is that we find a way to encourage more people to attend the conference. One suggestion was to have an optional activity on Friday night. (Originally we had planned for a trolley ride to Bricktown to eat and walk around. But, the weather did not cooperate.)

All in all, the 2008 RCML conference was a success. We look forward to seeing everyone in Georgia March 5-7, 2009.

Membership Report

RCML currently has 124 members. We would like welcome our newest members to the organization.

New Members in 2008

Megan Che
Eileen Faulkenberry
Thomas Faulkenberry
Wendy James
Michael Mikusa
Adrienne Redmond
Elsa Cantu Ruiz
Ray Skitzki

RCML 2007 Officers

President 2007-2008

Patricia Lamphere Jordan
Oklahoma State University
Stillwater, OK 74078-4042
patricia.jordan@okstate.edu

President Elect 2008-2009

Anne Reynolds
Kent State University
Kent, Ohio 44242
areynol5@kent.edu

VP Conferences, 2008-2010

Carolyn Pinchback
University of Central Arkansas
Conway, Arkansas 72034
carolinp@uca.edu

VP – Publications, 2007-2009

Sheryl Maxwell
University of Memphis
Memphis, TN 38152
smaxwell@memphis.edu

Secretary 2005-2007

Elaine Young
Texas A&M University
Corpus Cristi, TX 78412
elaine.young@tamucc.edu

Treasurer, 2008-2010

Mary Swarhout
Sam Houston State University
Huntsville, Texas 77341
swarhout@shsu.edu

Membership Chair

Roland Pourdavood
Cleveland State University
Cleveland, OH 44115-2440
r.pourdavood@csuohio.edu

Focus Editor

Jean Schmittau
SUNY-Binghamton
Binghamton, NY 13902
Jschmitt@binghamton.edu

Intersection Points Editor

Gabriel Matney
University of Arkansas Fort Smith
Fort Smith, AR. 72931-3649
gmatney@uafortsmith.edu

Webmaster

Ryan Speer
Perrysburg, OH 43551
speer99@yahoo.com