



Intersection Points

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Mathematics Learning

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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.

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PRESIDENT'S COLUMN

Challenges for the Future

By Anne Reynolds

As I begin my term as president I can't help but reflect on the organization, where we have come from, where we are now, and where we might be in the future. We have just completed another successful conference, our 36th, graciously hosted by Berry College in Rome, Georgia. What was unique and special about this conference was that in attendance were two of our founding members, Dr Jim Heddens, our first president, and Dr. Bob Ashlock, our third president. Both presented sessions that gave us a glimpse into the ideas that formed the basis of their work in remedial mathematics education during the early years of RCDPM. What struck me profoundly was the emphasis they placed on

mathematics from the perspective of meaningfulness for learners. At a time in the mid 1970s, when mathematics classrooms were very much influenced by behaviorism our founding members were in the forefront in advocating mathematics instruction as a sense making activity.

In the first of what we hope will become a series of Founders Lectures, Jim Heddens provided some historical perspective into the beginnings of RCDPM (the text of his talk is available at the RCML website). He then made reference to the change in name and focus: "The name had gone through changes as well as the purposes of the organization." From his perspective the purposes are more broadly defined as reflected in our current mission statement:

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.

He challenged the organization to examine what is distinctly different about us as a group and identify the strengths that would make us contribute to the field so that we continue to be vibrant for the next 35 years.

As I listened to Heddens' reflections on the past and challenges to the organization for the future I had a sense that, from his perspective at least, the original purpose has in some sense been lost. As I pondered this idea I wondered about some of the challenges we face in the 21st century and how they might be distinctly different from those of the early years of our organization. While there are still challenges to be faced in continuing to identify the needs of students in remedial mathematics programs I wonder whether our broader focus might provide a distinct opportunity at this time. I would like to suggest one way we might take up the challenge.

Many states have recently legislated an increase in the number and content of mathematics classes needed for graduating high school. For example, students in our current seventh grade cohort in Ohio will need to take four years of mathematics in high school to the level of at least Algebra II or its equivalent in order to graduate high school. These are high standards based in the belief that knowing

mathematics is important to success in the 21st century, both on an individual and also a national level. While it is difficult to argue with such lofty goals they pose a particular challenge: how will we reach all students so that they can be successful in higher level mathematics classes?

Our track record in mathematics education particularly at the high school level does not give me confidence that we will be able to graduate all high school seniors under these constraints unless we make significant changes in mathematics classroom practices. We have made great strides nationally in our goal of equity in educational opportunities but our



current unemployment statistics suggest we still have a way to go. The unemployment rate nationally stands at 8% while the number of unemployed African American males is double that at 16%. While we can argue that education may not be the only factor in such discrepancies it certainly plays a part. In the 21st century a high school graduation certificate is a

minimal requirement for participation in our society, socially, politically, and economically. I fear that if we maintain the status quo in our practices in teaching and learning mathematics at the high school level we will disenfranchise numerous young people.

I suggest that this may be one of the challenges that fits the goals of RCML in a variety of ways while also connecting with our roots in RCDPM. A significant number of students could find themselves classified as "remedial" in mathematics under the new standards for graduation. As I peruse the various

presentation topics from conferences over the last couple of years and remember sessions I have attended I see members with research interests in curriculum, teacher preparation and professional development, classroom practices, and student learning. It would seem that RCML members have the interest and expertise to contribute significantly to the furthering of our knowledge base in addressing the challenges we face in the mathematics education of students who might otherwise be left behind in this press for higher standards. Just a thought!

However we proceed as an organization I believe that we would do well to attend to the questions that our first president, Dr. Jim Heddens, challenged us with in the inaugural Founders Lecture. I will close with his words:

What does RCML want to stand for and what does it want to accomplish? If the organization is to survive another 35 years, what must be done?

$$\pi \theta^\infty \in \rightarrow \partial \leq \neq \pm \sum \sqrt{\nabla} \mathbb{Q} \mathbb{R} \theta \psi$$

Synopsis of 2008 Wilson Lecture

By Carla Moldavan

The 2009 Wilson Lecture was given by Dr. Thad Starner, Associate Professor in the College of Computing at the Georgia Institute of Technology. Dr. Starner is a graduate of the Massachusetts Institute of Technology and has been a leader in the field of wearable computing since 1996.

Dr. Starner demonstrated the use of Twiddler, a one-handed chording keyboard that allows him to type at up to 130 words per minutes. Twiddler has a 3 x 4 arrangement of

buttons. Multi-character chording allows production of suffixes or words without having to enter each character. High quality notes taken using Twiddler allow the note-taker to pay attention to what the lecturer is saying while recording notes much faster than using pen or pencil and paper. Dr. Starner also uses Twiddler to take notes during conversations with individuals.

Recent work by Dr. Starner has focused on the importance of mobile technology to deaf individuals. He worked with twelve teenagers from the Atlanta Area School for the Deaf to determine how they interact with both hearing and deaf individuals. Some of these students have a three-hour one-way commute to school each day. Dr. Starner's work includes ways to deliver lessons on American Sign Language to parents of deaf children using mobile technology. He has developed Copy Cat, a video game to help young children learn American Sign Language.

Currently Dr. Starner is extending his work with American Sign Language to benefit patients with Amyotrophic Lateral Sclerosis (ALS), otherwise known as Lou Gehrig's disease. By just thinking about or imagining the sign for a given concept, a person can communicate thoughts using technology that can read where the brain lights up. On the afternoon of March 5, before driving to Berry College for RCML, Dr. Starner had received results indicating a very high degree of accuracy in recognizing whether a person was communicating "cold" or "hot" and distinguishing whether a person preferred the "chair" or "bed," for example.

On Saturday, March 7, Dr. Starner left for a sabbatical in Germany. While there he will have access to equipment to further his work with using ASL for ALS patients to communicate. For more information about Dr. Starner's work, visit <http://www.cc.gatech.edu/~thad/index.htm>.

RCML 2009 CONFERENCE REPORT

ROME GEORGIA MARCH 5TH-7TH

By Carla Moldavan

The 2009 RCML conference found 73 registrants enjoying springtime weather in Rome, Georgia. The conference was hosted at Berry College, and the meetings kicked off with a reception at the Martha Berry Museum. After the reception on the evening of March 5, attendees were practically mesmerized by the Wilson Lecture given by Dr. Thad Starner. On the conference evaluations every person who rated Dr. Starner's presentation gave it the highest rating (5). A couple of respondents put "5+" and one added three exclamation points after the 5. Another wrote "Fantastic!"

Friday morning was the beginning of 48 regular presentations, with speakers from seventeen states. One highlight of Friday morning for many attendees was having Robert Ashlock to speak about John Wilson. After lunch, there was a business meeting led by President Pat Lamphere-Jordan. The business meeting was followed by regular sessions that continued until 4:45. At 5:00 p.m. many guests went on a tour of the Berry campus, enjoying the scenery of Swan Lake and the Old Mill. Pictures can be found on the RCML website. After dinner that evening, Dr. Jim Wilson presented the Keynote Address, "Geometry, Problem-Solving, and Technology."

After the Saturday morning regular sessions and lunch, Dr. Jim Heddens presented the first Founders' Lecture. His talk was titled "A Peek at the Past." Incoming president, Dr. Anne Reynolds, presented Dr. Heddens with a plaque to commemorate the event, after leading the group in a closing conversation about the conference.

The responses to open-ended questions on



the evaluation summarize the value of the RCML conference. Attendees appreciate the variety of topics to choose from and the opportunity to network. Presenters are grateful for the ease they feel in speaking and the helpful feedback that they receive. In the words of one respondent, "It was the most comfortable, friendly, hospitable, informative math conference I've been to. I loved the experience!"



**CONNECTION
POINTS**

By Gabriel Matney

This volume's connection points involves an oft' told riddle of an ogre and a village of dwarfs. There is much to think through in the riddle. How can mathematical knowledge inform the solutions to the riddle? What inter-mathematical connections strengthen the solution? What other disciplines could share creative ideas for a better solution and how are these ideas related to the discipline of mathematics?

The Riddle: Dwarfs and Ogre's Problem

One day every year in a village of dwarfs, an evil ogre comes to play a deadly game. The dwarfs get lined up by height and are not permitted to look any direction but forward (this means each dwarf can see all the dwarfs shorter than he is). The Ogre puts a black or white hat on each dwarf's head. The dwarfs cannot see what color hat was placed on their head but they can see the hats on the shorter dwarfs. This means each dwarf can see all of the hats in front of him, but not his own or any behind him.

Starting from the tallest dwarf, the Ogre asks, "What color hat are you wearing?" They go in order down the line calling out either "black" or "white". If a dwarf correctly identifies the color of the hat, they live. If they get the color wrong, the Ogre eats them. If any dwarf moves from the line up, turns around, touches another dwarf, or says something other than the single word Black or White, they all die.

Since the Ogre only comes once a year, the dwarfs spend all year planning a strategy to save the most dwarfs as possible.

Problem: Help the dwarfs design a strategy to save the most dwarfs. You can assume that all dwarfs are cooperative since they want to save as many of themselves as possible.

RCML 2010 Conference 37th Annual Meeting March 11-13, 2010 University of Central Arkansas, Conway Arkansas

Next year's annual conference will be held on the beautiful campus of UCA in Conway Arkansas. With a history that spans over 100 years, UCA is the second-largest university in Arkansas, with about 13,000 students enrolled. UCA's diverse array of academic offerings -- including 160 undergraduate, masters, and doctoral degree programs



UCA was founded as a Normal School in 1907 and became Arkansas State Teachers College in 1924. Eventually, in 1975, it became the University of Central Arkansas.



Register for the 2010 annual conference at <http://www.unlv.edu/RCML/conference2010registration.pdf>

March 6th 2009 RCML Business Meeting

Minutes

6 March 2009

Pat Jordan, Past-President, opened the business meeting and welcomed members to the 2009 conference. Anne Reynolds, President, gave a report from the election committee and introduced new officers. New officers introduced included:

- Sheryl Maxwell, Vice President for Publications
- Juliana Utley, Secretary
- Kerrie Richardson, Conference Committee
- Elaine Young, Conference Committee

Anne discussed the need for more people to vote, only 28 members voted (18 email and 10 mail). Members were encouraged to make suggestions to improve the number of people voting in the next election.

Elaine Young read the minutes from the 2007 business meeting. Gabriel Matney made a motion to approve the minutes and its was seconded by Harriett Lamm. The motion was approved to accept the minutes.

Mary Swarthout gave the treasurers report. Motion to accept the treasurer's report was made by Harriett Lamm and seconded by Sue Brown. Motion passed.

Alan Zollman asked about the possibility of raising dues. Pat reported that dues are raising from \$28 to \$35 (\$26 for Publications and \$9 for General Fund).

In reference to change in the publication status of the RCML journal, Alan Zollman suggested that any documents that we work out should be read over by a legal representative before they are signed. Pat reported that RCML does have a lawyer that is consulting on all matters pertaining to RCML publications. Ann gave an assurance that the board is on top of all issues related to the journal.

Sheryl Maxwell gave the VP Publications Report. She reported on the areas that fall under her position:

- Membership: 135 Current active members
- Website: linked to UNLV; complimented Ryan Speer who is serving as webmaster; encouraged feedback on website
- Newsletter: Introduced Gabriel Matney as newsletter editor; Gabriel encouraged membership to update email addresses and introduced a new section in the newsletter called "connections", he encouraged everyone to submit items.
- Journal: Reported simply a name change to our journal; we remain owners of the RCML publications; 4 journals were published during the past year (Focus Vol 30 #1 and then Investigations Vol 1, issues 1,

2, 3 (#3 comes out in April); In the future we will have 3 issues per year, but have the same number of articles as the 4 issues per year; each year the volume will be a different color

Sheryl encouraged membership to provide their dues to Mary Swarthout

Bill Speer asked that all new comers be welcomed. Pat Jordan welcomed all new comers and the founding fathers in attendance (Bill Speer, Robert Ashlock, Jim Heddens).

Alan Zollman asked for a standing ovation for Sheryl Maxwell's contributions as VP of Publications. Pat proceeded to present Sheryl with a token of RCML's appreciation. Anne Reynolds reiterated her thankfulness for all that Sheryl had done and that RCML was very lucky to vote Sheryl in at this fortuitous time.

Carolyn Pinchback reported that the 2010 conference will be at the University of Central Arkansas in Conway to be held on March 11-13.

Carla Moldavan and Martha Tapia gave a brief report on the 2009 conference indicating that there were approximately 70 people in attendance.

Pat Jordan encouraged members to think about hosting a conference. She mentioned potential sites might be Houston, North Carolina, Tulsa, Las Vegas. She also encouraged members to run for an office by completing nomination forms at the tables.

Acknowledgments of service were given to the following:

- Roland Pourdavood, Membership Chair, plaque
- Elaine Young, Secretary, plaque
- Sheryl Maxwell, VP Publications, plaque
- Carla Moldavan, Conference Chair, certificate
- Martha Tapia, Program Chair, certificate
- Gabriel Matney, Newsletter Editor, certificate
- Keith Adolphson, Conference Committee, certificate
- Stacy Reeder, Conference Committee, certificate
- Pat Jordan, President, plaque

There was no new business.

Pat Jordan made a motion to adjourn the motion was seconded. Meeting was adjourned.

Submitted by Secretary Juliana Utley
04/14/2009

RCML 2009 Officers

President 2009-2011

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

VP Conferences, 2008-2010

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

VP – Publications, 2009-2011

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

Secretary 2009-2011

Juliana Utley
Oklahoma State University
Stillwater Oklahoma 74078
juliana.utley@okstate.edu

Treasurer, 2008-2010

Mary Swarthout
Sam Houston State University
Huntsville, Texas 77341
swarthout@shsu.edu

Membership Chair

Mary Swarthout
Sam Houston State University
Huntsville, Texas 77341
swarthout@shsu.edu

Investigations 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