



# Intersection Points

The Newsletter of the Research Council on  
Mathematics Learning

January 2015

Volume 39, 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: [web.unlv.edu/RCML](http://web.unlv.edu/RCML)

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## PRESIDENT'S COLUMN



By Mary Swarhout

### The Power of Light

We have just passed through a season of lights – from decorations on houses, to the Menorah candles, the trees, and the fireworks used to ring in

the year of 2015! Have you noticed the move every day, by just a few minutes – back to longer daylight in our days? Can you see the difference as you head home from your study and work? I am aware of the power of light to impact my mood – but did you ever stop to think about the many light analogies we use for learning? We see the use of a light bulb above a head to signify that a great idea, thought or revelation has occurred. We might say, “let’s shine a light on that....,” as we work with students and teachers in mathematics classrooms and professional development experiences. We can

imagine that the process of learning as moving from darkness, unknowing, to light, knowing. So, as members engaged in the mission of for RCML, we are seeking “to stimulate, generate, coordinate, and disseminate research efforts designed to understand and/or influence factors that affect mathematics learning.” That sounds like a call to be the light, shine the light, and share the light with others in the mathematics education community to try and make a difference in the teaching and learning of students, teachers, and ourselves.

We are preparing to meet next month in a city full of lights – Las Vegas! An opportunity to increase our light – our learning and motivation for the work we do in mathematics education. While looking forward to those presentations, conversations, and interactions at the conference, there are two major documents that were published in 2014 that I want to mention and recommend for your reading list if you haven’t already investigated them. Both the National Council of Teachers of Mathematics (NCTM) and the National Council of Supervisors of Mathematics (NCSM) produced follow up publications to earlier work. For NCTM, we have *Principles to Actions: Ensuring Mathematical Success for All*, the next in the wonderful line of documents that have guided work in mathematics education. It provides support and guidance for what is needed for all students to learn – beyond the content and process standards – connecting to the work that is and needs to be done

to meet the goal of success for all. A link to the Executive Summary for this work is provided at the end of the column to provide you with more information and background.

The NCSM publication, *It’s TIME: Themes and Imperatives for Mathematics Education*, presents a set of leadership goals and is also focused on the ultimate goal of success for all students. As an organization that concentrates on providing leadership resources and support for those in mathematics education leadership roles, the document states that,

Our mathematics leadership actions must:

- impact every student and every teacher in every classroom,
- build the capacity of both people and systems,
- follow the guiding mantras that this call to action is a joint effort and we can make a difference together,
- recognize the systemic nature and interrelated components of the educational enterprise, and
- recognize that change of this magnitude takes time.

(\*can be found on first page of the Executive Summary – link provided at the end of the column)

As we prepare to work with teachers in professional development settings and with preservice teachers preparing to join the inservice ranks, keeping up and current with the movement and expectations within mathematics education is important to our ability to impact the mathematics teaching and learning in classrooms at all levels. These publications can help

us shape and refine our research agendas, connecting us to current areas of interest within the mathematics education community, and allowing us to do work that impacts, generates, communicates, and stimulates.

So, how about one of these documents as reading material for that flight to Las Vegas? I hope that you will be joining us for the annual conference – the links for registration and hotel are found at the RCML website. I know that many of you have completed entries for the 2015 Conference Proceedings document, are working to put together presentation slides, arranging how to cover classes and other responsibilities – and planning to be encouraged, motivated, surprised,

excited, and have some fun as the RCML membership meets February 26 – 28! See you there!

Continuing to join you in the RCML mission,

Mary

Executive Summary of *Principles to Actions* can be found at:

[http://www.nctm.org/uploadedFiles/Standards\\_and\\_Focal\\_Points/Principles\\_to\\_Action/PtAExecutiveSummary.pdf](http://www.nctm.org/uploadedFiles/Standards_and_Focal_Points/Principles_to_Action/PtAExecutiveSummary.pdf)

Executive Summary, and access to Chapter One of *It's TIME* can be found at:

<http://www.mathedleadership.org/resources/summary.html>

## 2015 Election Results

Thanks to each of the RCML members who participated in the recent RCML election. About 50% of the 2014 membership cast a ballot for the three positions being contested (secretary and 2 conference committee members). The membership's vote resulted in the election of the following candidates:

Secretary (2015-2017):

**Sarah Smitherman Pratt**, University of North Texas

Convention Committee (2015-2018):

**Hope Marchionda**, Western Kentucky University

**Bill McGalliard**, University of Central Missouri

Thank you to all of the nominees for being willing to serve RCML. It takes an active membership to keep RCML thriving and moving forward. For the 2016 election, we will be seeking nominees for the position of President-Elect, Vice-President of Conferences, Treasurer and for two Conference Committee positions. The nomination process will begin at the Las Vegas conference. Start thinking now, consider nominating someone or self-nominating yourself.

## **RCML MEMORIAL SCHOLARSHIP THANK YOU**



I would like to thank the Research Council on Mathematics Learning (RCML) for awarding me the 2015 Memorial Scholarship. The welcome news of this award was timed perfectly.

I am in the midst of my fourth year as an Assistant Professor of Mathematics Education at Bowling Green State University. My research agenda is guided by the belief that students should become active problem solvers who routinely demonstrate mathematical proficiency in various ways. My research influences my instruction with preservice and inservice teachers, as well as the students they teach. Ideas stemming from this research can be found in presentations at AMTE, NCSM, NCTM, PME, and RCML, as well as journals for practitioners, mathematics supervisors, and researchers. Finally, I am a member of many university, state-level, and national organizations and serve on numerous committees including the RCML conference committee and AMTE membership committee.

One of my mantras is that “family comes first”. To that end, Bowling Green State University has fostered that feeling with opportunities to balance work and family life. My wife, Brynn, and two-year old son, Matthew, truly feel connected to the community in northwest Ohio. The last four years have been a fabulous experience learning and growing through professional communities, including RCML. This scholarship will assist me to travel to Las Vegas and share new research findings and most importantly, reconnect with my RCML family. Truly, I am thankful for how RCML has helped me grow as a researcher, teacher educator, and practitioner and am excited to move the organization forward.

Sincerely,

Jonathan Bostic

# RCML Conference 2015



February 26 — 28, 2015

Alexis Park All Suite Resort, Las Vegas, Nevada



**The 42nd Annual Conference is set for Las Vegas — Come and participate in over 100 presentations, and make sure what mathematics happens in Vegas does not stay in Vegas!**

Featured speakers at RCML Vegas 2015 include:

The Founder's Lecture presented by Daniel Brahier, author of *Teaching Secondary and Middle School Mathematics* and co-author of the recently released National Council of Teachers of Mathematics *Principles to Action: Ensuring Mathematics Success for All* (<http://www.nctm.org/PrinciplestoActions/>).

The Wilson Memorial Lecture presented by Alex Dixon, an inspirational speaker and subject of the book *A Stroke of Luck: A Girl's Second Chance on Life* (<http://www.astrokeofluck.net/book/>).

Join us just minutes away from the famous University of Nevada, Las Vegas (to the east) and the infamous Las Vegas Strip (to the west) to continue RCML's mission of stimulating, generating, coordinating, and disseminating research efforts designed to understand and/or influence factors that affect mathematics learning. RCML Vegas 2015 promises to be inspiring and rejuvenating!

Conference Chairs: Travis Olson, Jeffrey Shih, & William Speer ([travis.olson@unlv.edu](mailto:travis.olson@unlv.edu), [jshih@unlv.nevada.edu](mailto:jshih@unlv.nevada.edu), [william.speer@unlv.edu](mailto:william.speer@unlv.edu))

Program Chair: Christa Jackson ([jacksonc@iastate.edu](mailto:jacksonc@iastate.edu))

All conference information can be found at <http://web.unlv.edu/RCML/conference2015.html>



## More Questions than Answers



by Rachel Bates, PhD  
Redlands Community College  
El Reno, Oklahoma

A new year is upon us and we are energized with the endless possibilities that lie ahead. The first day of a new semester is similar to a new year, full of possibilities. New semesters provide opportunities to teach new courses and revisit familiar ones. As I prepared for my new semester, I found myself reflecting for a moment on my role as a mathematics educator and the expectations that my students would hold for me. So many students come to school and attend class with the notion that their role is to purchase the required course materials and passively listen to our lectures while we define and demonstrate what information and concepts are important. Students and educators have

held onto this naïve model for so long that it seems taboo to alter it.

Our students seldom simply remember what they are told, what they read, or what we as educators clearly explain to them. Many of us have students who can state mathematical theorems and perhaps a few can even recite formal mathematical definitions, yet when called upon to explain they are unable to provide examples, construct counterexamples, or solve applied problems associated with the very concept they defined. As educators, we have a task beyond our own academic discipline; we strive to inspire our students to rise above their own expectations.

Effective mathematics teachers establish ways to challenge their students by making students ask and answer questions, and have students do the mathematics. Beyond the academic discipline, teaching is an art. No one style is effective for all teachers and for all students. Successful teaching requires practice, patience and the willingness to get out of the way. The process by which learning occurs very well may occur outside of our classroom, outside of our view, and without us. The ah-ha moment does not always happen in front of us,

and as teachers we may find this difficult to accept. It has always been a bit presumptuous of us to believe learning was happening because we were speaking and students were in the same room. Students who buy into this myth find themselves believing mathematics is simply mimicking steps, following formula and reciting definitions.

I have just recently completed my Ph.D. and after all of the years of learning and studying, I find I am left with more questions than answers. Learning is not about obtaining answers and it does not stop at the answer. I have found that the hardest part of teaching is to ask more questions rather than answering them. Halmos adequately stated some years ago, “The best way to learn is to do; the worst way to teach is to talk”. It is easy enough to teach a student the quadratic equation and the traditional formula and perhaps put the equation to song; what is hard to teach is what to do when the answer is not in the book. When I teach a familiar course (college algebra or statistics), I don’t like to use lecture notes or dreaded PowerPoint. Instead I prefer to glance at the topic and begin by asking questions. I never know exactly where the conversations will take us. I can anticipate moments of uncertainty and unknowns. This is where the conversations become authentic, genuine and exciting. Students can pick up on this and more often than not, are more engaged. In a traditional 50-minute class, I challenge myself not to do all the talking and I challenge my students by

having them do the mathematics (individually or in groups). With each new question, we all carefully listen to each other, I probe about side issues, I challenge others to provide their perspective, and at times, I point out connections from previous discussions and clear up misconceptions. I have to facilitate the time and have an idea of where we need to be each week but each class is different; the students are different.

None of this just happens. Some students are unsure how to adapt to this approach at first. It has taken practice, patience and belief. I accept that my students are learning inside and outside of the classroom, and it happens without me. I accept that some of the learning is difficult to adequately quantify with traditional assessment measures but it is happening. I see it and experience it in my classes. Learning doesn’t occur in isolation and as educators, we are just one piece of that process. For some students we are a small piece and for others we play a more vital role. In this new year and new semester, I challenge you to get out of your way. Stop controlling the classroom conversation, ask more questions and listen. The answers that our students will someday be responsible for finding solutions are not in any book. It will require them to listen to each other and for them to discover that there are more questions than answers.

# MEMBERSHIP REPORT

Greetings from your Membership Coordinator. As of December 31, 2014, the membership of RCML is stable at 154 members (up from last year's membership of 130). Many have already renewed for 2015, and we thank you. We continue to support our journal, *Investigations in Mathematics Learning*, with over \$4,600 this year for costs associated with publication of the current volume. Thank you!

Now is the time to renew your membership! Membership spans the calendar year, January 1 to December 31. One benefit of membership is an entire volume of *Investigations*. Issues are published and mailed to all members in the subsequent academic year.

The 2015 RCML Conference web site has a new platform for registration, and RCML is also using this new platform for membership renewal. This provides a more seamless integration of the membership form, conference registration, and payment. You can register for the conference and pay your membership dues together by following this link: <https://rcmlconference.wufoo.com/forms/registration/>

Alternatively, you can find the form for only renewing your membership or joining RCML here: <https://rcmlconference.wufoo.com/forms/membership-form/> When you submit the form online, you have the option of paying through PayPal or mailing a check. If you choose to send a payment in the mail, the check should be made payable to RCML and mailed to the RCML Treasurer, Dr. Kerri Richardson, UNCG-TEHE Dept., PO Box 26170 SOEB, Greensboro, NC, 27402.

If you have any questions about the status of your membership or wish to update your contact information, please email Dr. Sarah Pratt: [rcmlmembercoordinator@gmail.com](mailto:rcmlmembercoordinator@gmail.com). Thank you for being a part of RCML.

## MEMBERSHIP FOR 2015

Membership dues are \$40 for full members, \$34 for students, and \$55 for international members. Payment is due on **January 1<sup>st</sup>** for the calendar year **2015**. Details about how to renew your membership can also be found on the RCML web site: <http://web.unlv.edu/RCML/>



**RCML Journal**  
***Investigations in Mathematics Learning***

Sheryl A. Maxwell, VP for Publications

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The 2014 holiday season was in full bloom,  
When the *Intersection Points* editor sent the e-mail.  
“A progress report is due from your workroom.  
How’s RCML publications, won’t you tell?”

Now, the subscriptions have nearly all been renewed.  
The checks have been processed and off to the bank.  
Looks like the sufficient amount of dollars are accrued  
*Investigations’* account is healthy, I will announce point blank!

The Volume 7 issues are being prepared in earnest,  
With Issue 1 sent to the subscribers, this past fall.  
Issue 2 will be mailed during January you’ll witness,  
Issue 3 will come in Spring 2015, you recall.

In 2015, the future publications look bright ahead.  
More and more manuscripts are trickling in.  
RCML authors, from what I have proofread,  
Have written for *Investigations* issues, within.

The RCML membership has recently increased.  
The new membership chair, Sarah, did her duty.  
We look forward to meeting colleagues, with earnest,  
At the upcoming conference . . . don’t be snooty!

As the RCML VP of Publications, I announce with glee.  
The continuance of *Investigations* has been successful.  
We have numerous worldwide subscribers, secured quite frankly  
Through continual efforts; thus all members should be thankful.

The new year is here so let me remind you  
To receive Volume 8 journals you’ll need to renew  
Your RCML membership, so now please do!  
Then, you can read the issues through and through!

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