



Intersection Points

The Newsletter of the Research Council on 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.

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

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President's Column



By Juliana Utley
RCML President

The Power of Light

In her January 2013 President's Column, Kay Wohlhuter pointed out things that we as the members of RCML have to celebrate. I

think it is time to re-examine what we should be celebrating as we start a new year in RCML.

We should celebrate all those who support us as mathematics educators. I know that my husband has been supportive of me both as a longtime classroom teacher and as mathematics education faculty as well as my involvement with mathematics organizations such as RCML. We all have those folks in our lives that we can point to and say without them we would not be where we are and doing what we do. This year marked the passing of a strong supporter of mathematics education and RCML, Marge Speer. Marge supported RCML by supporting Bill Speer, a founding member of RCML. She graciously allowed Bill to house the many historical documents for RCML. Thank you Marge Speer for all that you did for RCML behind the scenes.

We should celebrate all of our RCML membership. As a graduate student in my last year of coursework, Stacy Reeder encouraged me to present my dissertation research at RCML when it was in Oklahoma City. That year I got to hear Grayson Wheatley speak and get a glimpse of the RCML family. In my session, I recall Bea Babbit, Sheryl Maxwell, Pat Jordan and Alan Zollman among others in attendance asking me questions and helping me to improve my research. Since that year, February 2004, I have not missed a single conference and really look forward to coming each year to see and mingle with our family. I truly find RCML as an opportunity to network and grow as a researcher in a safe and inviting community of researchers. I encourage each member to invite their graduate students and colleagues to attend and join RCML. Members are the best way to get the word out about RCML. By the

way, don't forget it is time to renew your RCML membership; all memberships expired on January 1st, unless you have gone online to renew them at <http://web.unlv.edu/RCML/memberform.html>. Let's continue to increase our membership in 2016. Have ideas to increase our membership – contact any board member.

We should celebrate the work of Sheryl Maxwell, VP Publications. I want to personally say how thankful I am of the many hours that Sheryl has dedicated to RCML over the years, but particularly for her work during her time as VP Publications. Without Sheryl's tireless efforts on behalf of our journal, *Investigations in Mathematics Learning*, I am not sure where our journal would be at this time. Sheryl has helped RCML through a transition from publishing under the name *Focus on Learning Problems in Mathematics* to *Investigations in Mathematics Learning* and transitions of journal editors twice. I could write for days on the many things that Sheryl has done for RCML and we appreciate all that she has done and helped RCML to accomplish. At the conclusion of this year's conference Sheryl will be turning over the reins of VP Publications to Gabriel Matney. As you see Sheryl at this year's conference, be sure to say thank you.

We should celebrate the high quality publications of RCML. As our fall started, Drew Polly hit the ground running as our new *Investigations in Mathematics Learning* journal editor. I encourage each of you to review and submit manuscripts for the

journal. If you are not currently a reviewer or know of someone that you think would make a great reviewer for the journal, please email Drew Polly at investigationseditor@gmail.com. The RCML proceedings have been a nice addition to the RCML publications thanks to the many proceedings editors that have continued to insure the high quality of the manuscripts that are accepted to be published in the proceedings. Thank you to Travis Olson and Keith Adolphson for their hard work this year as the proceedings editors and to all those who reviewed conference proceeding papers. Lastly, thank you to Summer Bateiha for all her hard work getting board members to get items to her for the newsletter on time, not an easy feat. Summer has turned over the reins of the Intersections (newsletter) editorship to Jonathan Bostic with the publication of this newsletter.

Lastly, we should celebrate the work of the RCML leadership that continues their work year round. Your executive board has been meeting monthly to facilitate the work of RCML and help the RCML to continue to move forward. In 2016, you will see the unveiling of a new RCML website with our own domain name and the reinstatement of the publications committee. Thanks to Eileen Faulkenberry and the conference committee for getting RCML set for the 2017 conference that will be in Fort Worth, TX – start planning now. Thank you to all those members who work to make RCML the outstanding organization that it is. It takes every member.

Thank you for your support this year. I am looking forward to a great conference in Orlando. See you in February!

Juliana Utley

2016 Election Results

For the Fall 2015 election cycle, 85 current members completed ballots in a competitive race for all board and service committee positions. Thank you to all the candidates for sharing their interest in supporting the work and mission of RCML by agreeing to run for office. A special thanks to Darlinda Cassel, Megan Che, Melfried Olson, and Kay Wohlhuter for their work as members of the Nominations Committee this year.

If there are questions, or further information is needed, please contact Mary Swarthout at swarthout@shsu.edu.

Congratulations to each of the following members that will be recognized and take

office at the upcoming 2016 conference in Orlando!

President Elect

Daniel Brahier, *Bowling Green State University*

Treasurer

Kerri Richardson, *The University of North Carolina at Greensboro*

VP for Conferences

Kansas Conrady, *University of Oklahoma*

Conference Committee Members

Ryan Fox, *Belmont University*
Cynthia Orona, *University of Arkansas*

Publications Committee Members

Keith Adolphson, *Eastern Washington University*
Sarah Ives, *California State University, Sacramento*

RCML Memorial Scholarship Award, 2016

Sheryl Maxwell

With pleasure, the RCML Memorial Scholarship Committee (comprised of Sheryl Maxwell, chairperson, Bill Speer, Alan Zollman, and Kerri Richardson) has awarded **two** scholarships this year, one to **Rachel Bachman** and the other one to **Sarah Pratt**. Each will be given \$1,200 to offset costs of attending the RCML Conference and presenting their unique research.

Rachel Bachman's award is given in honor of long-time member **Dr. Robert Ashlock** whose efforts in mathematical error patterns made by students in computation, provide insight regarding why a child may have adopted an incorrect mathematical procedure. His book about this topic has reaped many editions. Dr. Robert Ashlock began his career in 1957 as a fourth and fifth grade teacher with a bachelor's degree in elementary education. He later received a master's degree in elementary school administration from Butler University and a doctorate in elementary education from Indiana University.



Sarah S. Pratt's award is given in honor of **Marjorie A. Speer**, wife of charter RCML member, Dr. Bill Speer. Marge passed away after an unexpected surgery and a courageous fight for her life in October 2015. The couple cultivated an amazingly full life together over their 48-year marriage. She worked alongside her husband, Bill, for 20 years at Bowling Green State University, Ohio, and later at the University of Nevada. She attended many RCML Conferences with Bill, and so became part of the RCML "family."

To learn more about the research of these 2016 RCML Memorial Scholarship Award winners, **Rachel Bachman** and **Sarah Pratt**, check your 2016 RCML Conference booklet for the times they will be presenting. Also, consider applying for the 2017, RCML Memorial Scholarship Award. The announcement of the committee members, as well as the requirements and procedures for applying will be posted at the RCML website in the Spring 2016.

RCML Memorial Scholarship Thank you

In honor of Dr. Robert Ashlock

Rachel Bachman



I would like to thank the Research Council on Mathematics Learning (RCML) for awarding me one of the 2016 Memorial Scholarships. I sincerely appreciate this support and am humbled by the honor. The scholarship will support me in attending and presenting at the 2016 RCML annual conference in Orlando, Florida. I will present my research on evaluating the effectiveness of an interdisciplinary general education course that explored mathematical concepts through the use of physical motion and dance activities.

I am currently in my third year as an assistant professor of mathematics education at Weber State University in Ogden, Utah. As I write this note, I am reading reflective journals written by students enrolled in my math for elementary teachers course. Their comments express understanding and enjoying math for the first time, overcoming paralyzing math anxiety, and learning math through active thinking. These comments make me smile because RCML helped me shape this class and hundreds of other mathematics education classrooms around the country departing from traditional models of mathematics learning. One of the student's comments especially aligned with the influence of RCML, "Math... actually makes sense. Procedures can be great but only if we now how they work."

I am so grateful for the work done by RCML members to support scholarship contributing to the continuous improvement of the quality of mathematics education. I look forward to seeing you in Orlando.

RCML Memorial Scholarship Thank you
In honor of Marge Speer
Sarah Pratt



I would like to thank the Research Council on Mathematics Learning (RCML) for awarding me the 2016 Memorial Scholarships in memory of Marge Speer. I am deeply humbled and honored by this award. I know what a special person she was, and I know the RCML family wants to honor all that Bill has done for this organization. I hope that this is one way we can let him know just how much we care for him and his family.

In my fourth year as an assistant professor at the University of North Texas in Denton, TX, my time is filled with many activities that all center around what I learned from my dissertation chair, Bill Doll: We can plan but we cannot predetermine. As I work with pre-service teachers in mathematics methods courses, I strive to inspire a passion for complex conversations around mathematical ideas and concepts. The same focus is infused in my work with in-service teachers with the added challenge of allowing their students to have complex conversations in their classrooms. In my research, I employ design experiments to explore pre-service teachers' understandings of multiplication and division of integers and polynomials. This research is ongoing (over 5 years of data collection) and it continues to evolve (in keeping with planning but not predetermining). I am excited to share the most recent findings at the 2016 RCML Conference.

I am truly grateful for all of the opportunities and professional friendships that have developed since joining RCML. My two daughters, Taylor (8) and Victoria (5), may not understand why I will be going to Orlando without them but I know my time there will be well-spent, connecting with colleagues and making new friendships. It truly is a privilege to be part of such a special organization. Thank you for all of the support in my professional career

Submit your work to *Investigations in Mathematics Learning*!

Drew Polly, *Investigations* Editor
investigationseeditor@gmail.com

The journal of the Research Council on Mathematics Learning, *Investigations in Mathematics Learning*, continues to seek quality research papers focused on the processes of teaching and learning mathematics. RCML Members, you are strongly encouraged to consider submitting research from your RCML conference presentation or your proceedings to *Investigations in Mathematics Learning*. I recommend that prior to submitting your article that you take time to clearly articulate how your study addresses the need for your study in the context of the existing literature and also the specific details of your research methods. Lastly, make sure to be explicit to detail how your article contributes to the research in the field.



We are aiming to have decisions on manuscripts made within 6 to 8 weeks. I also hope that you will also consider serving as a reviewer for the journal. The reviewer interest form is here-
<http://uncc.surveymshare.com/s/AYAMERA>

RCML Conference 2016

February 25 — 27, 2016

Doubletree by Hilton Orlando at Sea World, Orlando, FL



The 43rd Annual Conference is set for Orlando, FL! Engage in over 100 presentations and make memories with RCML members in the Sunshine State!

VP Conferences: Eileen Durand Faulkenberry
2016 Conference Chair: Nancy Cerezo
2016 Program Chair: Gabriel Matney

The RCML 2016 Conference is gearing up for your attendance in February 2016! Rooms are ready for your reservation, sessions are approved, and the Mouse is waiting for you! Orlando is an exciting venue for our meeting as Double Tree Orlando at Sea World (see link below) has a sprawling campus with pools, restaurants, and comfortable surroundings for enjoying Florida in the winter. Its location is not only near Sea World, but minutes from great restaurants, shopping and museums. Definitely something for everyone when the conference sessions conclude for the day. Looking forward to seeing you in Orlando!

Cost

\$160 for members

\$200 for non-members (includes membership - choose this one if you haven't paid your membership for 2016)

\$100 for student members

\$134 for student non-members (includes membership - choose this one if you haven't paid your membership for 2016)

\$100 for guests (attending meal functions but no sessions)

Conference Location/Accommodations

Double Tree Orlando Sea World

10100 International Drive

Orlando, FL 32821

Tel: +1-407-352-1100

Fax: +1-407-352-2632

Room Rates: Double or King \$129 per night;

King Junior Suite \$349 per night

All rooms are Non-Smoking

Reservation link for Research Council on Mathematics Learning (Code: RCM) - <http://doubletree.hilton.com/en/dt/groups/personalized/M/MCOSRDT-RCM->

20160221/index.jhtml?WT.mc_id=POG

NEW! Panel Sessions featuring two presentations will be held during the mornings of Friday and Saturday

Conference At-a-glance information Thursday, February 25th

- Registration Opens at 3:30pm Lakes Conference Center between Superior and Okeechobee Room 1
- Research Poster Session begins at 4:30 PM
- The Wilson Lecture by Mike Hynes starts at 5:30 PM
- RCML Reception with small appetizers at 6:30PM – 8:00pm

Friday, February 26th

- Continental Breakfast at Hotel from 7:00 AM -7:50 AM
- Sessions will run Friday from 8:00 AM until 4:20 PM
- RCML Business Luncheon from 12:00 PM until 1:20 PM
- Founders Lecture by Alan Zollman 4:30 PM

Saturday, February 27th

- Continental Breakfast at Hotel from 7:00 AM -7:50 AM
- Sessions run from Saturday from 8:00 AM until 11:50 AM
- Research Reflection Lunch from 12:00 PM until 1:00 PM

All conference information can be found at <http://web.unlv.edu/RCML/conference2016.html>



Bridging differences: What is best for students?



Bill McGalliard, PhD
University of Central Missouri
Warrensburg, MO

As a new year approaches, mathematics educators as proponents and developers of reform in the approach to teaching and learning of mathematics face many challenges. With that said we do have some successes to point to, such as the National Assessment for Educational Progress, where the percentage of fourth graders scoring proficient or above rose from 13% in 1990 to 42% in 2013 (National Council of Teachers of Mathematics, 2014). This is a significant accomplishment in which the mathematics education community has played a significant role through research and professional development efforts. Widespread adoption of the Common Core State Standards for Mathematics (Council of Chief State School Officers, 2010) may also be seen as a great success although it does not come without its share of controversy. Many opponents of the Common Core raise objections that seem incomprehensible to those who have read the research accompanying the myriad of problems that exist within the teaching and learning of

mathematics. It is on this particular area of contention that I would like to focus my attention.

Having worked at both the secondary and post-secondary levels in departments of Mathematics, Economics, and Education, I have seen how a misunderstanding about what constitutes knowing mathematics occurs in many different contexts. Although the objective of any class, no matter its content, level, or department, always is for students to understand the mathematics under investigation, it is how this is to be accomplished where a misunderstanding between educators and the general public may occur. This, in some cases, may stem from not understanding what constitutes the Common Core. Many of you reading this probably feel the same frustration as I do when it comes to trying to make people understand that we want students to understand mathematics on a deeper level and not just as a set of facts to recall, memorize, and then use when the need arises. This is where we as educators may have a different definition of how to teach the mathematics content and want students to be successful. In addition to learning how to work algorithmically, we hope that our students will come to understand how mathematics really works on a deeper level and consequently learn to love the subject that we teach.

However, it is important to remember that the critics of the Common Core generally want students to be successful at doing mathematics as well. I see this dichotomy of

viewpoints in the classes I teach even when my students are future teachers. It takes most of a semester for many of them to become open to new ways of viewing mathematics that do not involve a known algorithm or prescribed procedure to be taught until mastery is achieved. As a result, I am often accused of denigrating the classic way of doing mathematics, which necessitates the careful presentation of my argument. I have to clearly state that I firmly believe that learning an algorithm without understanding why it works defeats the purpose of learning the algorithm in the first place. I must further explain that I am not saying that students should not learn the classic ways of doing mathematics.

As 2016 dawns, I urge everyone to think carefully about the approach we take to those who view doing and learning mathematics

differently. If you have had similar experiences trying to change the minds of future teachers, is it any wonder that their parents or other members of the public, who are not as committed to the pedagogical enterprise, object vehemently when mathematics is approached from such a different standpoint than they have ever experienced? Therefore, one of my new year's resolutions is to approach such situations with patience and understanding and I encourage you to consider a similar approach.

Council of Chief State School Officers. (2010). *Common Core State Standards Initiative*. Retrieved from http://www.corestandards.org/assets/CCSSI_Math%20Standards.pdf

National Council of Teachers of Mathematics. (2014). *Principles to actions: Ensuring mathematical success for all*. Reston, VA: NCTM.

MEMBERSHIP REPORT

In 2015, we end the year with a record 182 members! Thank you for joining or renewing! All members should have received the first issue of the newest volume of *Investigations in Mathematics Learning* (in September). If you are a member but did not receive the journal then please contact the Membership Coordinator so your mailing address can be verified.

The method for joining or renewing your membership is online only. This online format seems to be working very well. We hope that you will contact any of the RCML board members if you have input regarding this online membership process.

If you have questions about the status of your membership or wish to update your contact information then please email Dr. Sarah Pratt: rcmlmembercoordinator@gmail.com. Thank you for being a part of RCML!

MEMBERSHIP for 2016

Membership dues are \$40 for full members, \$34 for students, and \$55 for international members. Payment is due on **January 1st** for the calendar year **2016**. Included with membership is one year's subscription to *Investigations in Mathematics Learning*, with issues being distributed in fall, winter, and spring. The RCML membership form can be found at this web page: <https://rcmlconference.wufoo.com/forms/membership-form/> Payment is accepted through this form using PayPal. *One does not have to have a PayPal account to use the secure PayPal system.* If, however, anyone joining or renewing wishes to pay using a check then 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.

Alternatively, if you register for the 2016 RCML Conference then you can renew your membership at that time.

Finally, please recruit your colleagues to become members. You may direct them to the RCML membership page to sign up online.

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In Memorial to Marge Speer

A forward by Gabriel Matney

From the beginning of the Research Council on Mathematics Learning, then known as RCDPM, Marge was the unofficial secretary/treasurer. She worked hours every month to see that the organization was stable fiscally and in its documentation. She made sure that important work was done including typing the Constitution and Bylaws, creating, formatting, duplicating, folding, addressing and mailing the Newsletter through volume 6. Marge had perfect attendance at annual meetings up through our most recent meeting in Las Vegas. Perhaps only Bill Speer knows the exact amount of her contribution - she never sought the attention that she deserved and always greeted you with a pleasant smile. Marge knew what the organization meant to Bill and embraced it with the same level of passion and respect. We seek to honor the amazing person that Marge Speer was, her beautiful life, and family.

