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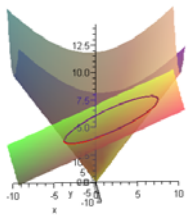


Intersection Points

The Newsletter of the Research Council on Mathematics Learning

October 2008 Volume 33, No. 2

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 COLUMN

Opening our Eyes – Sharing our Ideas

By Pat Jordan

Several interesting pieces of information floated across my desk this week. The first was actually a series of position announcements from Jerry Becker's e-mail list. If you, by chance, have been thinking about changing positions, this is the time. The hardest decision you encounter might be where in the United States you'd like to live! Over the next five years, based on the number of us who are quickly racing to retirement, there will be a large turn over in mathematics educator positions in colleges and universities across the nation with many of those positions remaining unfilled.

The second piece of information came from the report of a study regarding the failure rate of middle school and eighth grade algebra 1 students. I anticipated, that perhaps, we have discovered that some students are not developmentally ready for an intense study of algebra 1 at age thirteen or fourteen. Unfortunately, the results of the study indicated that the high failure rates are more related to the content knowledge and preparation of the teachers and to the financial support the school receives from

the community rather than the readiness of the students.

The third piece of information came from a colleague across campus lamenting the fact that, now more than ever before, her chemical engineering students seemed less prepared to pass the mathematics content courses they need to support the engineering concepts they are expected to learn. The average engineering student seems shocked that he or she is going to need to understand so much mathematics and, beyond that realization, these students are experiencing extreme difficulty in passing the required mathematics courses. Be aware that most of the students have completed pre-calculus and/or calculus courses in high school. To address this problem, several of the engineering professors are holding "prep" sessions several days prior to their classes to review the mathematics students will be using in class so they will be able to complete the engineering homework.

What do these scenarios have to do with us? Well, I'm glad you asked. Our mission statement reminds us that RCML seeks to stimulate, generate, coordinate, and disseminate research efforts designed to understand and/or influence factors that affect mathematics learning. To me, all three of these issues are directly related to our mission and the research that we should be and are conducting in our colleges and universities. Finding highly qualified mathematics educators to fill all the open positions is a challenge we face every day. At Oklahoma State, this will mark the third year we will be seeking to fill a K-8 mathematics education position.

Research indicates that teachers' content knowledge directly affects the learning of their students. Additional studies have also indicated two important aspects of learning that impact student's choices of mathematics courses in high school as well as future career decisions. The first of these ideas is that the teacher's attitude about teaching mathematics is more influential on students' future decisions than his or her grasp of content knowledge. The second finding is that middle school is the optimal time to capture students' interest in pursuing higher-level mathematics courses in high school and selecting careers that are mathematics oriented.

Since many of us are teaching pre-service teacher candidates in mathematics departments and colleges of education, perhaps we can have a positive impact on our own students' self-esteem and

excitement about learning and teaching mathematics by our own enthusiasm and excitement. Additionally, if we establish an environment that encourages and rewards exploration within all our mathematics coursework, we might impact other students' decisions about future careers.

The problem as I see it is cyclical! Our college-level mathematics students don't select mathematics- related careers, especially teaching school mathematics, because they don't feel confident in their own mathematics skills or find mathematics exciting and engaging. We send others into the classroom with less than enthusiastic approaches to teaching mathematics and their students, in turn, find mathematics dull, boring, and not very challenging. These classroom students are not interested in mathematics, don't continue to take mathematics courses in high school, and don't select careers in those areas.

After twenty years of the *Standards*, one would hope that students' dispositions to know and do mathematics would have improved, and we would see more students enrolled in our mathematics, mathematics education programs, and other mathematics-related fields. How many times have you heard a student say she is majoring in elementary education because she's not very good at math and doesn't want to teach it beyond the first or second grade? At our university, we often hear that very comment. I believe that view of mathematics may also account for the fact that we have forty secondary social studies education students, thirty secondary English education students, and only seven secondary mathematics education students. How about your program and your university? Maybe working together through this organization, we can focus on solutions to this problem. Maybe the dissemination of our research can provide insights into new ways to address and overcome this problem and help us develop new cadres of well-prepared mathematics educators at all levels from kindergarten through college.

INVESTIGATIONS

IN MATHEMATICS LEARNING

A Letter from the Editor
Jean Schmittau

Sheryl and I have spent a great deal of time throughout the summer inaugurating the RCML journal with its new title *Investigations in Mathematics Learning.* The issues that had to be dealt with ranged from legalities to economic concerns to seeming endless details, but all were important and had to be addressed. The response to the journal's new title has been uniformly positive; everyone we've spoken with likes it. In July I spoke at the ICME conference in Mexico and met some of our international contributors and reviewers. They also were unanimous in spontaneously commenting favorably on the new title.

Please check your library to make sure it has a subscription to the journal, and if not check the inside front cover for prices and encourage your librarians to contact Sheryl Maxwell. There will be copies available and it will also be possible to purchase class sets of an issue if you should need this service. New manuscripts are also always welcome. Our fall issue should go out by early October, but with bulk mailing it may arrive at different areas of the US at different times. With the arrangement Sheryl and I have set up there should be no more late issues, which will doubtless be welcome news to everyone.

A Letter from the VP of Publications

Sheryl Maxwell

WHEW! What a whirl wind of activities that have been transpiring during the past four months to get our RCML Journal into print! If you have not already received it, you will soon have the first issue of this journal in your hands to read. The journal under the leadership of Editor, Jean Schmittau, has the same high-level quality as *Focus on Learning Problems*. In addition to color, the new journal has a refreshing new title as seen above. As she reported elsewhere in this newsletter, she has received positive reactions from mathematics educators throughout the world when she shared the information with them.

INVESTIGATIONS IN MATHEMATICS LEARNING issues will come to you three times per year: Fall, Winter, and Spring. If you are currently a member of RCML for 2008, you will receive the issues, as part of your membership dues. Payment for the journal will transfer to the Academic Year rather than the calendar year. Thus, for the 2009-2010 Academic Year, the membership dues will need to be paid by June 2009. Check to see if you are current with your membership for 2008. If not, send your payment to me, so you will receive your issues of our RCML official Journal,

INVESTIGATIONS IN MATHEMATICS LEARNING, promptly. According to our records, about two-thirds of our members are current with their membership. As we celebrate the inauguration of our new journal, we want you to receive it!

Continued from page 4…

Additionally, check with your college and/or university to see that they are receiving the official RCML journal, INVESTIGATIONS IN MATHEMATICS LEARNING, so others can be introduced to it. The former publisher has discontinued *Focus on Learning Problems,* so there maybe some misunderstanding that the official RCML Journal continues but under a new name. If your college/university does not receive our journal, here is the information that you can share with them. An **Institutional** subscription to INVESTIGATIONS IN MATHEMATICS LEARNING is $70.00 per Academic Year for an institution located in the United States and $85.00 per Academic Year for an institution located outside the United States. The remittance is due in June of the previous Academic Year.

Send payment to:

Dr. Sheryl Maxwell,

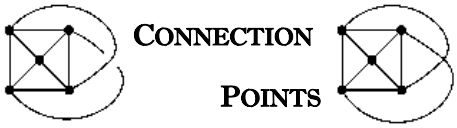
289 Crestmont Cove,

Cordova, TN 38018-6904

This information is repeated on the inside cover of each issue. Congratulations to the RCML Executive Board who made the difficult decision to take over the publication of the official journal of RCML! ONWARD and FORWARD!

Please join me in recognizing Sheryl Maxwell, the Vice-President for Publications, and Jean Schmittau, Editor of FOCUS and now the new journal, for the outstanding work they have done is getting the new journal up and running. Because of their hard work and untiring efforts, we have another high quality journal of which we can all be proud. Again, thanks to both women for all the work they have done on our behalf.

Thanks, Pat



Operating in an Epsilon Neighborhood

By Gabriel Matney

While working on my Ph.D. in mathematics education I was teaching for Santa Fe South high school in Oklahoma City. Living in the secondary teacher domain made it very easy for me to quickly establish connection with other teachers and work toward solutions to the daily problems we faced. Applying the ideas from mathematics education research and sharing results with colleagues in a 50 mile radius was nearly a daily event. Within this local area network of professionals emerged a wonderful amount of significant teaching and field research.

Upon receiving my Ph.D. my family and I relocated to a different state. As a new professor I found myself struggling to make localized connections. While my ties to researchers remained strong through email and conference presentations I greatly missed the daily perturbations offered up by a localized face to face neighborhood of teachers. Now that my name plate had Dr. as

a title and a university subtitle a great many teachers were hesitant to really speak to me about their daily struggles. In their experience, those associated with the university acted as evaluators in the state's teacher evaluation system and/or were associated with administrative decisions handed down by the state. These impressions made it difficult to have genuine conversations about the problems and possibilities of the mathematics classroom.

Seeking to overcome these barriers I initiated a new 40 hour field experience component for our middle level and secondary mathematics candidates. The candidates would be directly interfacing with students who were at-risk of failing their mathematics class. Through this programmatic adjustment the teacher candidates and I were thrust into the daily challenges faced by students and teachers. We were able to establish partnerships with teachers and have authentic contexts by which to discuss and enact possible solutions.

Another area that helped me engage with the local neighborhood of teaching professionals was the opportunity to serve as an instructor in a Mathematics and Science Partnership grant. These grants require a two week summer institute, for which I was given instructional privilege to perturb teachers thinking about mathematics content and pedagogy. During the following school year I visited and helped the teachers in their classrooms. Without exception, every visit proved to be a fruitful time of collaboration and discussion about what was happening with the student's mathematical thinking. After 4 years I have more than 20 teachers with which I collaborate on a regular basis. The presence of these relationships aids me in research, program decisions, and teaching practice. What are some of the ways others have maintained connection to local area mathematics teachers?

Connection Points is a section of the Intersection Points newsletter with the expressed purpose of sharing and discussing connections relevant to mathematics education research. Share with us some of your connections. Send ideas, stories, or comments to gmatney@uafortsmith.edu

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Math Humor

Warning: For your own social wellbeing these jokes should never be told outside of mathematical circles.

Teacher: What is $2k + k$?
Student: 3000!

Q: Why do you rarely find mathematicians spending time at the beach?
A: Because they have sine and cosine to get a tan and don't need the sun!

Teacher: "Who can tell me what 7 times 6 is?"
Student: "It's 42!"
Teacher: "Very good! - And who can tell me what 6 times 7 is?"
Same student: "It's 24!"

Two mathematicians are studying a convergent series.
The first one says: "Do you realize that the series converges even when all the terms are made positive?"
The second one asks: "Are you sure?"
"Absolutely!"

Election Ballot – Fall, 2008

BALLOTS ARE DUE DECEMBER 1, 2008. PLEASE VOTE!

Please mail this page to: Anne Reynolds, 480 Suzanne Drive, Kent, OH 44240

OR email your selections to areynol5@kent.edu

V-P for Publications: Serves a 2-year term beginning 18 hours prior to Business meeting

Duties - Coordinates activities of Newsletter Editor, FOCUS Editor, and Membership Coordinator, serves on Editorial Board of FOCUS, and serves on the Executive Committee

CHOOSE ONE:

□ Sheryl A. Maxwell – University of Memphis

Secretary: Serves a two-year term beginning 18 hours prior to Business meeting

Duties – Records and maintains minutes of Business and Executive meetings, coordinates correspondence with President, and oversees master Handbook

CHOOSE ONE:

□ Megan Che – Clemson University

□ Juliana Utley – Oklahoma State University

Conference Committee (we will elect two members)

Serves a three-year term.

Duties – Works with the Vice President for Conferences as requested in reviewing conference proposals, assisting with annual conference activities, and reviewing conference evaluations.

CHOOSE TWO:

□ Gwen Carnes – Emporia State University

□ Eileen Faulkenberry – Texas A&M University at Commerce

□ Kerri Richardson – University of North Carolina Greensboro

□ Elaine Young – Texas A&M University at Corpus Christi

Election Fall, 2008

Biographical Information

Sheryl A. Maxwell

Sheryl Maxwell is an Associate Professor of Mathematics in the College of Education at the University of Memphis where she has been a member of the faculty since 1994. She teaches mathematics methods to both preservice teacher candidates and in-service teachers in elementary and middle schools. Dr. Maxwell's research focuses on understanding and implementing aspects that assist teachers to use best practices in teaching mathematics. She has been the Principle Investigator of four Eisenhower Title II Grants and a Co-PI of an Improvement of Teacher Quality Grant that provided best practices in mathematics institutes for teachers. In addition, she was the Co-PI of a National Science Foundation grant, OPTIONS, that helped adolescent females recognize the importance of mathematics and science in job opportunities. Dr. Maxwell has authored many articles about mathematics topics as well about educational issues. She has presented over 60 mathematics and/or education-oriented topics at national, state, and local conferences throughout the United States during the past 15 years.

She is the Past-President of The University of Memphis Faculty Senate (2005-2006) and is currently holding offices in national, state, and local organizations. She is the chairman of the Shared Governance Committee at the University of Memphis and a member of the University Standing Committee on Program Assessment. At the College of Education level she uses her knowledge of Problem Base Learning and the Center of Research on Education Diversity & Excellence (CREDE) Standards (developed from research studies by Tharp, Estrada, Dalton, & Yamauchi, 2000), to prepare math teachers in the urban setting. Since she works most closely with preparing teachers in the urban setting, she recognizes how changing the teaching of mathematics in the K-12 classroom is crucial to helping students conceptually learn mathematics.

She has been active in the Research Council on Mathematics Learning since the early 1990s when she was a graduate student at the University of Virginia. She has served on the Conference Committee and later hosted the RCML conference in Memphis, Tennessee. She was elected as the President-Elect and served as the President of RCML in 2003-2005. She returned to the Executive Board in 2007 after being elected as the Vice President of Publications. She serves on editorial board of RCML's journal, *Focus on Learning Problems in Mathematics.* During the past year, she was instrumental in helping the organization assume publication of the journal that is now named *Investigations in Mathematics Learning*. The first issue of the journal will appear in October 2008.

Megan Che

Megan Che is an assistant professor of mathematics education in the Eugene T. Moore School of Education at Clemson University. She teaches undergraduate, masters, and doctorate level classes in mathematics education. Megan's research interests include equity and access issues in mathematics learning, as well as postcolonial school mathematics. Current research projects include an ongoing exploration of single-gender school mathematics from a critical perspective, a study of GED students and mathematical understanding, and a study of the intra-team dynamics of elementary students participating in the First LEGO League competitions. A graduate of the University of Oklahoma, Megan has participated in several RCML conferences and values this conference as a unique space for rich dialogue about mathematics learning.

Juliana Utley

Juliana Utley is an assistant professor of mathematics education at Oklahoma State University and has taught middle and high school mathematics in Oklahoma for 17 years. She currently serves on the RCML conference committee and was co-program chair for the 2008 RCML conference in Oklahoma City. She is also active in the School Science and Mathematics Association serving on the publication committee and reviewer for the *School Science and Mathematics Journal*. Additionally, Juliana is active in the Oklahoma Council of Teacher of Mathematics currently serving on the board and as co-editor of the OCTM Newsletter.

Gwen Carnes

Gwen Carnes has been teaching 20 years, the last 5 at Emporia State University. Her background is mathematics education but she currently teaches graduate level research design and statistics. Her research interests include collaborative efforts in the math classroom and novice teacher mentoring. Her most recent publication will be included in the NCTM mentoring publications due out this fall.

Eileen Faulkenberry

Eileen Faulkenberry has been an Assistant Professor of Mathematics at Texas A&M University – Commerce since 2003. her research interests are in pre-service and in-service teachers' subject matter and pedagogical knowledge. She predominantly teaches mathematics education courses for elementary, middle school, and secondary math education majors. As the director of Teacher Quality grant programs on campus since 2004, she has worked to enhance the quality of mathematics teaching in Northeast Texas by providing in-service teachers with updated knowledge about the mathematics they are teaching, along with research-driven pedagogical strategies for them to use in their classrooms.

As a young researcher who has received support from the RCML community, she wants to be an integral part of this community so that she is able to give back to future young researchers in need of this support.

Kerri Richardson

Kerri Richardson is an assistant professor of mathematics education at the University of North Carolina at Greensboro. She is interested in early algebra in relation to both pattern-finding tasks and multiplication concepts and in spatial instruction with all learners of mathematics.

Elaine Young

Dr. Elaine Young is an Assistant Professor of Mathematics at Texas A&M University-Corpus Christi with 11 years experience teaching mathematics content courses for elementary teachers. She has been a member of RCML since 2002, and is finishing a term as secretary of that organization. She has several years' experience as co-chair for the annual conference of the Coastal Council of Teachers of Mathematics (CCTM), a regional affiliate of the NCTM.

Don't

Forget

To send in

Your Vote

to Anne by

December 1, 2008

RCML 2009 Conference
36th Annual Meeting
Berry College

- Rome, Georgia
March 5-7, 2009

Don't miss out on this year's conference in the beautiful Rome, Georgia. Read all about our Keynote speaker, Dr. Jim Wilson and our Wilson Lecturer, Dr. Thad Starner on RCML website http://www.unlv.edu/RCML/conference2009

Rome Georgia

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