RC ML

Intersection Points

"where research and practice meet"

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.

In This Issue ...

PRESIDENT'S COLUMN

Bea Babbit, President

"Highly Qualified"

The halls of higher education, state departments of education, and K-12 schools are buzzing with the words "highly qualified." In-service teachers with multiple years of experience are asking, "What do you mean, I'm not highly qualified?" after many years of experience teaching in the content areas. School district administrators are wondering how many teachers will face reassignment and who will be teaching many sections of content courses. University program coordinators are trying to determine which requirements to incorporate into programs at the last minute to meet the highly qualified standards. Preservice teachers are saying, "What else do I have to do before I graduate?"

One group of teachers who has been particularly hard hit by the "highly qualified" debate is special educators. In a recent visit to several middle and high schools, I was concerned to hear faculty say, "None of our special education teachers are highly qualified". I considered this statement an insult and demoralizing to an entire group of teachers. It started me thinking more deeply about highly qualified teachers.

As many of you know, I am a special educator in higher education. What you may not know is that I would meet the "highly qualified" requirements because I have both a bachelor and master's degree in mathematics education. I am well aware of the advantages of my mathematics content background when addressing the mathematics needs of students with disabilities. I know the K-12 mathematics curriculum and am well aware of how one idea in mathematics relates to another. I am knowledgeable about those concepts and skills that cause difficulty for most students and therefore am not surprised when they also cause difficulty for students with disabilities. I support the NCTM Standards and stress concept development and problem solving in my courses. Hence, I agree that special educators who complete a degree in a content area before earning their special education license or endorsement do bring important skills to their job.

But what are the qualifications to teach the hard to reach? What combination of content and strategy knowledge prepares a teacher to respond to the learning needs of those students who struggle in mathematics?

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PRESIDENT'S COLUMN, continued from page 1

Let me give you some examples that became apparent while I did the background research to write a chapter on teaching geometry to elementary students. A special educator will always consider the reading level and vocabulary difficulty of any instructional material that they use. No mathematics methods text that I reviewed discussed the challenge of bringing terms like "quadrilateral" and "parallelogram" into a primary mathematics text. Special educators know that a subgroup of students with learning disabilities struggle to interpret pictures and diagrams. No mathematics methods text even suggested that students might have difficulty interpreting line drawings of three-dimensional figures. Special educators know that students with disabilities often reason more concretely than their age-level peers. While writing the geometry chapter, I confronted numerous questions on how to teach a concept to young children without the reasoning level or knowledge base of older students. For example, how does a child draw parallel lines without knowledge of transversals? Students with disabilities struggle when key concepts are inferred instead of directly taught. In addition, they often have difficulty imagining the effects of movement. In my review, elementary mathematics texts were universally poor in presenting transformation content. Figures were sometimes flipped across a side of the figure and sometimes across an imaginary line. Figures were rotated about inferred points on or off a figure. In no examples that I reviewed did the teacher's manual explain the importance of clearly establishing the point of rotation or the transformation line. In addition, no teacher's manual suggested that some students have difficulty imagining the effects of movement and may need to perform the transformation to determine its outcome.

There are some things that teachers who work with students who struggle know and that knowledge can compliment the math content and math pedagogy knowledge of math teachers. In an ideal world, all teachers would be "highly qualified" in all subjects but in the real world it might be best to collaborate to provide quality education to all students.

When it comes to collaboration, let me thank all those who were involved in putting on such a great conference in Little Rock. We appreciate your detailed planning and constant attention to everyone's needs during the conference. The presentations were interesting, the discussions were thoughtful, and the camaraderie was delightful.

Views from Different Sides

by Sheryl Maxwell, Past President

I have known this mathematics education organization known as RCML from many perspectives. As a graduate student, mature in age but a novice in experience, I stumbled with the letters that signified the organization [RCDPM] reverting to spitting out the name to uncover the acronym. In those days, I viewed any presenter with awe; the meeting of the "Big Whigs" on Thursday behind closed door as the nucleus of the organization; with the rest of us members having various statures. I certain was one of the pawns, a lesser chessman.

Later, as I presented more mathematics education topics at conferences, I became more confident as a contributor to the organization. These were my days of growth in learning about the establishment. Then, one day I was asked to run for the conference committee. Did the hierarchy really trust me with an office? Although I struggled with what I was to do, I became more aware of the organizational aspects, viewing members as friends and colleagues, no matter their stature.

When I volunteered to host an annual conference, it took a major leap of faith, both in my own capabilities and with the RCML finances. Although I desired to develop a conference of excellent quality, I didn't want the Memphis Conference to be a financial drain on RCML. With a successful conference behind me, with a net gain of $300, I continued on having attained much knowledge and wisdom.

As I ran for the office of President of RCML and became the President-Elect, I recognized that I had never served on the Executive Board of the organization. How would I learn about the inter-workings of the organization? I had so many questions, but found that by reading the constitution and by-laws and working with the then current President, Ginny Usnick, and the executive board, I became educated.

As the President of RCML during the past two years, I have watched others, both executive board members and other members, learn as I had about RCML. To me, our focus of friendliness to others remains

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This, present column is my 9th, and last column. I thought it fitting to end my contributions to the column as the "mantle" of editorship of Intersection Points has passed from Dan Brahier to Mike Naylor, and fresh, new blood would reenergize the newsletter. Knowing Mike's versatility and creativity, I don't doubt that he has a number of new ideas he is going to share, so that forthcoming issues of *Intersection Points* will have no dearth of novel, interesting, instructive and insightful ideas!

Since 2002, I have had the privilege of sharing my views in the Musings column of *Intersection Points*, a total of 8 times. A list of the titles and corresponding years of their publication is given below:

1. (2002). Appreciating the beauty of math. *RCML Intersection Points, 27(2).*
2. (2002). A new fanaticism, pure arrogance, or sheer naiveté? *RCML Intersection Points, 27(3).*
3. (2003). The prisoner's dilemma. *RCML Intersection Points, 28(1).*
4. (2003). Making mathematics relevant. *RCML Intersection Points, 28(2).*
5. (2003). Mentoring mathematics online. *RCML Intersection Points, 28(3).*
6. (2004). Meeting the needs of the Y generation. *RCML Intersection Points, 29(1).*
7. (2004). Standardized assessment and constructivist-based teacher preparation: Strange bedfellows? *RCML Intersection Points, 29(2).*
8. (2004). Implications and consequences of the No Child Left Behind Act. *RCML Intersection Points, 29(3).*

As can be seen, I have shared views ranging from the importance of appreciating the beauty of math to the (perhaps intractable?) problems associated with some policy mandates.

My fond hope has always been that fellow RCML members would reflect on what was written, and perhaps even respond to some of my views. While the latter hope has remained unfulfilled, I do hope the former did not go unfulfilled!

As RCML members, we have always been mindful of research that serves to help the practitioner who has the responsibility of facilitating the learning of math. Also, in most of our conferences, it has been a practice to invite speakers who share their insights on making connections between math and other disciplines. In other words, RCML has emphasized the meaningful learning of math. Now, however, math educators are being bombarded by powerful forces that seem intent on an agenda built on a very narrow perception of what it means to be mathematically literate. It looks as if being mathematically literate is being equated to competent performance in standardized exams, and the only credible research is that from the positivist paradigm. So, where do we go from here?

As befits the title of this column, let me end by asking some questions for consideration by our RCML members.

1. Are you concerned about the directions taken by policy makers vis-à-vis how math teaching and math education research are to be conducted? If so, what can RCML do to redress/resolve any issues regarding math teaching and research?
2. Given that membership is our lifeblood, what steps can be taken to increase our membership?
3. How can we encourage new education faculty (especially math ed, special ed, etc) and current graduate students to become members, and how can we support their research efforts?
4. What can be done to ensure reasonably-sized audience/participation, especially towards the last day of the RCML conference? (Remember the times when we had hardly 3 people for some of the Saturday presentations?)

Once again, thank you for the privilege of allowing me to share my "musings," and good luck to Mike Naylor in his new role of newsletter editor!

Thank you, Ram, for your fine work on this column for the past 3 years.
We will miss your thought-provoking ideas! – mn

RCML in North Little Rock Conference 2005 Report

by Linda Griffith

The thirty-first Annual RCML Conference was held in North Little Rock, Arkansas at the Wyndom Hotel on February 24-26. By all accounts the conference was very successful. Seventy mathematics educators gathered together to share research finding and learn from each other.

The birds-of-a feather discussion groups that were so popular at the 2004 conference made a triumphant return this year. On Thursday evening after registering and enjoying a reception, three groups formed around the topics of Technology, Teacher Education, and Beginning Research-Collaborating in Research. These round table conversations were lively and created an atmosphere of collegiality that lasted throughout the conference.

On Friday morning the sessions began with a keynote by Dr. Michael Naylor. His talk entitled *Abacaba-Dabacaba* was enthusiastically received and enjoyed greatly by the audience. During the day on Friday 33 papers presented. The luncheon business meeting was also held. At 5:00 pm that afternoon Jaynette Huff, master quilter, presented a session entitled *Mix It Up—Arkansas, Mathematics and Quilts*. Evaluations indicate that the participants found this session very entertaining and informative. After dinner the Wilson lecture was delivered by Dr. David Peterson, professor of mathematics at the University of Central Arkansas. He was joined by his wife Donna and presented a session that focused on mathematics, music and dance. The music and dance of the Ozarks were featured in this session. Participant evaluations also indicated that this was an extremely popular session.

On Saturday morning Constance Kamii gave the keynote following the continental breakfast. Again the evaluations indicated that this session was found to be very informative and worthwhile. The title of her talk was *The Harmful Effects for Teaching "Carrying" and "Borrowing"*. Another 15 papers were presented on Saturday morning. After sharing a final lunch together the conference adjourned for another year.

Expenses for the conference totaled $8268.89 and conference registrations totaled $8900. So we are happy to report that the conference produced revenue of $631.11. Our goal was to be sure that the conference was self-supporting and we are happy that we were able to succeed.

The conference committee would like to take this opportunity to thank all who participated in the conference for making it such a success. We greatly enjoyed having RCML in Arkansas. It is time to start looking forward to next years conference in Las Vegas.

Points of Puzzlement

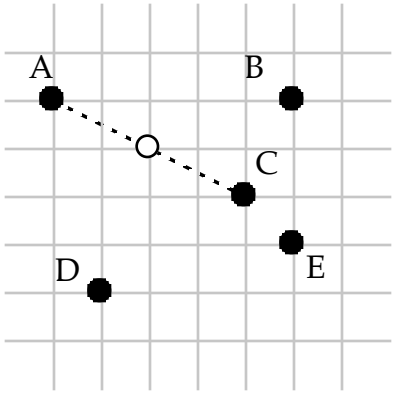
by Michael Naylor

MIDPOINTS AND GRIDPOINTS

How can 5 points be placed on a square lattice so that no midpoints between any pair of points lies on a lattice point?

In other words, place 5 points on the intersection points of the grid lines of a square grid so that if you connecct all of the points with line segments and find all midpoints of those segments, none of the midpoints will lie on an intersection point on the grid.

Here's an example that *almost* works:



Points A, B, C, D, and E are arranged on a square grid with *nearly all* midpoints between pairs of points not on an intersection point. However, the midpoint of segment AC (indicated with a hollow circle) lies on a gridpoint, so this is not a solution.

Email your solution to mnaylor@cc.wwu.edu. Best solutions win valuable intrinsic rewards.

RCML Speaker Proposal Form
33nd Annual Meeting
Las Vegas, Nevada
February 24-26, 2005

PROPOSALS DUE September 30, 2005, and may be submitted via the WEBSITE, or FILL OUT THIS PAGE AND EITHER MAIL, EMAIL, OR FAX IT TO:

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Sessions will likely be 40-45 minutes in length.

Name: Position/Title:

Preferred Mailing Street Address:

City: State: Zip:

Preferred Telephone: E-Mail Address:

Topic Area:

Title of Presentation (Limited to 75 characters):

Type of Presentation: Single Paper, Panel, or Other (Describe Below)

Theme Area(s): Diagnosis/Assessment, Instructional Tools & Strategies
Special Education, Teacher Education, or Other (Describe Below)

How will this presentation address the mission of RCML? (Short Paragraph)
(Mission: RCML seeks to stimulate, generate, coordinate, and disseminate research efforts designed to identify, understand and affect factors which influence mathematics learning.)

Abstract of the Proposal:

Presentation abstract suitable for program booklet (no more than 50 words):

Co-Presenter(s) (If applicable): Co-Presenter(s) Address:
Co-Presenter(s) E-Mail Address:

Minutes:
RCML Annual General Meeting

February 25, 2005

President Sheryl Maxwell called the meeting to order at 12:10 p.m. The meeting was held in the Silver City Room of the Little Rock Wyndham Hotel. President Maxwell introduced her board: President-Elect Bea Babbitt, Vice President for Conferences David Davison, Vice President for Publications Alan Zollman, Treasurer Winifred Mallam, Secretary Sue Brown, Newsletter Editor Dan Brahier and Membership Coordinator Roland Pourdavood.

Item 1: Approval of Minutes for 2004 Meeting

The minutes of the annual meetings are published in the April issue of Intersection Points, they are included on the RCML website and they are posted at the Annual Conference in the registration area. Pat Lamphere Jordan called for approval of the minutes. David Davison seconded the motion. The minutes were approved.

Item 2: Treasurer's Report

Winifred Mallam presented the Profit and Loss report for 2004. RCML had approximately $3,000 in income generated by membership dues and $8,000 in income generated by program registration. Expenses incurred during the calendar year 2004 for the 2004 conference, Focus, office supplies, postage, printing, and web master honorarium totaled approximately $14,000. When income generated by interest and back service charges were calculated, the net result was a loss of approximately $1,500 for the period January through December 2004. The total assets of RCML in both operating and conference accounts are approximately $31,000. Pat Lamphere Jordan moved that the treasurer's report be accepted and Dixie Metheny seconded the motion. The motion passed unanimously.

Item 3: President's Report

Sheryl presented Dan Brahier with a plaque in recognition for his outstanding accomplishments as RCML Newsletter Editor. She also announced that Michael Naylor is the new Newsletter Editor.

Sheryl presented Sue Brown and Alan Zollman with plaques recognizing their contributions to RCML as Secretary and Vice President for Publications. She also presented nameplates to the 2005 Conference Committee Chairs: Linda Griffith, Carolyn Pinchback, and Belinda Griffith.

Sheryl announced that if you are on the program, you are expected to attend the conference and for future conferences there will be an early and late registration fee. The early fee is to encourage members to register early so that the conference committee will have a better feel for the number of people attending the conference. This will assist the committee in conference planning.

Roland Pourdavood reported that RCML has 210 members and 15 new members.

Item 4: Vice President for Conferences Report

David Davison announced that there were no paper awards this year. The papers submitted do not meet the criteria for acceptance. Next year the due date for paper submissions is January 1. David encouraged everyone to submit his or her articles to Jean Schmittau, Focus editor. David thanked outgoing Conference Committee members Carolyn Pinchback and Sandy Johnson.

The 2006 RCML Conference will be in Las Vegas. The conference chair is Bill Speer. Co-chairs are Virginia Usnick, Jeff Shih, and Marilyn Ford. The conference will be held February 23-25. It will be located at the International Gaming Institute with the AmeriSuites as the conference hotel. Ginny Usnick distributed the call for papers.

Possible sites for future conferences are Cleveland, Central Florida, Texas and Nashville.

Item 5: VP for Publications Report

Alan Zollman thanked Dan Brahier for his work as Newsletter Editor. He announced that Dan, who began as editor in 1998, is retiring as Newsletter Editor.

Alan announced that members should have received the Spring 2005 Focus. He thanked Sheryl Maxwell, Bill Speer and Ginny Usnick for their help with the journal. Focus is now an international journal.

Alan thanked Web Site Editor Ryan Speer. Ryan does a wonderful job of updating the website, posting items on the site almost immediately.

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Thoughts to Share from Birds of a Feather

by Alan Zollman

At the RCML 32nd Annual Meeting in Little Rock, there were three "Birds-of-a-Feather" sessions at the beginning of the conference. The purpose was to provide opportunities to meet in an open forum with other RCML members to discuss issues of interest and to share research ideas. One session focused on Teacher Education. Below is a listing of the participants' consensus of the positive aspects and the negative concerns of working in Teacher Education.

Teacher Education Concerns:

- Too much testing exists now
- High teacher turnover – Lack of quality teacher applicants
- Lack of time for pedagogy
- Physical limitations – technology, manipulative storage
- Time limitations with students
- Disconnect between math and education departments
- "Can't do math" – the self defeating attitudes by some students
- Lack of Standards-Based Classrooms for placement of students
- Challenge of the mentality that views teachers as technicians rather than creators of curriculum
- The politics of higher education: more interest in getting grant money and not in how the money is to be used

Teacher Education Positives:

- The trend towards more collaboration within and with other areas
- The opportunity to transform students' beliefs and ideas
- More awareness of access and equity now exist
- Shift to more active learning and better use of questioning
- Research of learning has expanded
- Problem solving with multiple methods is commonplace
- "Aha" moments of discovery to share with students
- More interactive classrooms (manipulatives; discussion)
- Chance to work with teacher in the field – from pre-service to in-service
- Education is an act of love and math education is no different - opportunity to help students recognize and act on this

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our greatest asset. **I thank each of you for your continued support of this organization. Thanks for letting me serve in the capacity as President for two years in this national mathematics education group.**

As Past-President of RCML, I'll view RCML differently. However, I will be continuing to support aspects of this organization in other dimensions or from another perspective. I will be serving on the Executive Board and am the Chairman of the Nominations Committee this year. Consequently, let me know how you desire to serve in this organization. I wish each of you continued professional growth as mathematics education colleagues during the coming year and always.

Thank you Sheryl for your past and continuing efforts to make RCML a success! – mn

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Item 6: New Business

Bea Babbitt assumed the Presidency. She presented Sheryl Maxwell with a plaque recognizing her outstanding contributions to RCML as president.

Bea thanked the 2005 Conference organizers: Linda Griffith, Carolyn Pinchback, and Belinda Griffith.

She introduced the new board members:
Vice President for Publication: Anne Reynolds,
Secretary: Diana Perdue (not in attendance),
Conference Committee: Robert Capraro and Jeff Shih

Continuing members are Past-President Sheryl Maxwell and Vice President for Conferences David Davison. Bea announced that RCML will be electing a new President Elect, Vice President for Conferences, Treasurer, and two Conference Committee members. She asked the members to consider running for office and distributed nomination forms.

Bea asked all first time attendees to stand and welcomed them to RCML. She announced that the special session on quilts would begin at 5 p.m. and reminded members to attend the Saturday morning breakfast at 7 a. m. Constance Kamii will speak at 7:30 a.m.

There was no further new business and President Bea Babbitt closed the meeting at 1:20 p.m. *Submitted March 22 by Sue Brown for Diana Perdue*

RESEARCH COUNCIL ON MATHEMATICS LEARNING PERSONNEL, 2005-2006

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