

Coaching Chronicles

News and Events for EMC Project Participants

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University of Idaho



The PI's Corner: Transforming Teaching

BY JOHN SUTTON

At the beginning of the 2013-14 school year, the Examining Mathematics Coaching (EMC) Project entered its final year of National Science Foundation funding. The research that EMC has been engaged in, with your assistance and support, is demonstrating the impacts that mathematics coaching has on coaches' knowledge, teachers' knowledge, and teacher practice. These results will inform the larger education community about mathematics coaching.

Since EMC began in 2009, an enormous amount of work has been going on around the regular coaching sessions completed by our coaches and teachers. First, our coaches have attended two intensive professional development workshops over the four-year period: one focused on Coaching Knowledge and a second focused on Mathematics Content (including our final workshop held for 24 coaches this past summer in Denver—see the article on page 3). The project also has developed and refined six instruments for measuring various aspects of the coaching process. These are the same instruments that you, as participants, have completed on an annual basis as part of your EMC work, which has yielded an enormous amount of

unique data for our study. In addition, these instruments have been used, with EMC's permission, by more than 25 other projects in various districts and schools throughout the nation.

To date, the EMC Project has had two articles published in national mathematics education journals, with six more articles currently in the review process. EMC researchers have produced four technical reports regarding confirmatory factor analysis and the validity and reliability of instruments, preliminary impacts on student achievement, and the definitions for coaching knowledge. EMC staff also have prepared and provided more than 25 presentations on the project and its early findings at national, regional, and state conferences. Most of these materials are contained on the [Results](#) page of the EMC Web site, where they can be easily downloaded and reviewed.

We want to express our gratitude and appreciation for the hard work you do, for your partnership in the EMC Project, and for your contributions to the many papers and presentations we have been able to develop. Without all of you being engaged in mathematics coaching in your schools and districts, we would have noth-



Dr. John Sutton
EMC Co-Principal Investigator
RMC Research Corporation

ing to share. From our observations, interactions, and analysis of the data generated by our coaches and teachers, we know that mathematics coaching is transforming teaching. It is reflected in the measures of content knowledge and pedagogical content knowledge in mathematics, the degree to which coaches are conforming to the literature on mathematics coaching, and the observable changes in teacher practice. We also know from our analysis of data over time that coaching "intensity" is one of the factors that is linked to the greatest impacts. In other words, the more time a coach works with a teacher, the more apparent the changes are in teacher practice. While that may seem pretty intuitive, it is nice (and unique) to have the data we

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have generated to validate that important approach.

To be part of such an important study over time is an honor and a privilege for all of us at the EMC Project. As the school year unfolds, we hope and trust that the work of transforming mathematics teaching through coaching is only beginning. We know that with the tools and experiences you have gained through your work, and hopefully through your involvement in EMC, you will continue to make a difference by refining practices that ulti-

mately will help students develop a deeper understanding of and appreciation for mathematics.

We will update you as our research continues this year (*see article on page 4*). We believe that, at the end of the day, our findings will reinforce for schools and administrators that the investment in mathematics coaching yields tangible results in student and teacher attitudes and success.

Thank you again for your crucial support in our final year. ▲

Did You Know?

Eighty-seven percent of current EMC coaches and 69 percent of current EMC teachers have been part of the study since its very beginning in 2009. *Wow!*



Your Coaching Sessions This Year: Eight Would Be Great!

(This article originally appeared in the Fall 2012 edition of the newsletter.)

Each year, the EMC Project sets a target for coaches of eight (8) three-part coaching sessions per teacher during the year, or roughly one per month. And each year, some coaches meet that target, others exceed it, and some don't quite make it.

"We know that coaches and teachers have so many different responsibilities, and that can make scheduling regular coaching sessions a tall order sometimes," says Beth Burroughs, EMC co-PI and associate professor of Mathematics Education at Montana State University. "At the start of each year we simply ask that each of our coach-teacher pairs renew their effort to meet this target. It really does make a

huge difference to our research study."

Why? In short, undertaking at least eight sessions per year ensures that a coach and teacher are working together closely and consistently. Because EMC is studying how changes in a

coach's knowledge may bring about changes in a teacher's knowledge and practices, the project wants coaches to have as many opportunities as possible to impart their new knowl-

edge to teachers, explains Mark Greenwood, EMC researcher and associate professor of Statistics at Montana State. "And the more

consistent our coaches can be in how they go about this, the better it is for our study," he adds.

Burroughs points out that sessions don't necessarily have to be once a month.

"Some coaches and teachers like to cluster more sessions at the start of the school year, for example, and then spread out the rest for the remainder of the year. That's fine," she says.

The second component of the project's annual target for coaching sessions is that at least four of the eight sessions involve a lesson in number and operations. That's because this is

the one focused area within the breadth of mathematics content that researchers chose to measure throughout the study—through both online assessments and annual classroom observations by EMC staff.

"The progression of mathematics in grades K through 8 has a preponderance of number and operations," Burroughs says, "so when we had to limit our study to one area of mathematics, it was the natural choice."

So, as you plan your coaching sessions for this year, remember that the number of sessions and the lesson content really *do* make a difference in the continuing success of the project. If you ever have questions or concerns about the EMC target for your coaching, please contact Project Director James Burroughs at emc@math.montana.edu. ▲

Undertaking at least eight sessions per year ensures that a coach and teacher are working together closely and consistently. ... The number of sessions and the lesson content really do make a difference.

Professional Development Report: Mathematics Content 2013

Twenty-four coaches traveled to Denver in July for their second of two EMC professional development workshops—this time in Mathematics Content. During the five-day workshop, coaches from seven states explored their own thinking about mathematics during each day’s program of large- and

professional development administered over a four-year period. During that time, EMC has offered two types of professional development to all project coaches: Mathematics Content and Coaching Knowledge. These PD workshops form the heart of the EMC research objective: determining what types of knowledge,



(Foreground, left to right) Coaches Liz Ramsay, Kelly McNeil, and Edi Wagner participate in one of three role-play scenarios staged during the week.



The workshop saw plenty of engaging discussion. Shown here are (foreground, from left) coaches Liz Matthews, Linda Wieland, and Becky Berg.

small-group discussion and intensive problem-solving.

“We thoroughly enjoyed spending a week focused on mathematics content,” says Beth Burroughs, EMC co-PI and one of the workshop’s instructors, along with Clare Heidema and Arlene Mitchell of RMC Research Corp. “Of course, it was bittersweet, because this was the last summer of PD for the EMC Project. We’ve built a lot of relationships with all of the coaches in our project over the last four years.”

This year’s event marked the final installment of EMC

and in what combination, make a coach most effective in shaping a teacher’s mathematics knowledge and practices.

This summer’s workshop was held on July 15-19 in downtown Denver and covered topics that included mathematical practices and number sense, computation, fraction concepts, operations with fractions and ratios, and proportional reasoning and percents.

“I really want to become a stronger math student myself,” said one coach who attended the Denver workshop. “I learned new strategies and models that will help me sup-

port teachers. [The instructors] made this a very enjoyable experience.”

Another coach who attended said, “I’m very thankful to have been a part of this project, to learn from such knowledgeable people, and to meet such great coaches from around the U.S. who I can now call my friends and turn to for advice.”

According to the project’s

research design, coaches were sorted randomly at the start of the project into two PD groups. Group 1 received its first professional development in 2010, in Mathematics Content, followed by its second PD session in Coaching Knowledge in 2012. Group 2 received its first PD in Coaching Knowledge in 2011, followed by Mathematics Content this year. ▲

Our special thanks to the 24 coaches who attended the EMC professional development workshop this summer:

Ruth Baardseth La Crosse, WI	Shannon Loree Meridian, ID	Wristine Senecal East Helena, MT
Megan Bennett Grand Junction, CO	Liz Matthews Gallatin Gateway, MT	Robin Wacha Fargo, ND
Becky Berg Billings, MT	Jane McGill Papillion, NE	Edi Wagner Browning, MT
Krista Campos Pocatello, ID	Kelly McNeil Bozeman, MT	Abe Wallin Coeur d’Alene, ID
Gay Lynn Erb Meridian, ID	Liz Ramsay La Crosse, WI	Linda Wieland Grand Junction, CO
Carla Haas Grand Junction, CO	Rebecca Roesener Atlanta, GA	Angel Zickefoose Billings, MT
Danielle Inserra Papillion, NE	Jill Sanders Billings, MT	Liz Zitterkopf Grand Junction, CO
Angle Lee Idaho Falls, ID	Julie Schmalz Clifton, CO	Elleen Zombro Bozeman, MT

EMC COACH PROFILE: GAY LYNN ERB

Name: Gay Lynn Erb

District: Joint School District No. 2, Meridian, Idaho.

EMC participant since: September 2009

EMC teachers: Brett Mosley, Lewis and Clark Middle School;

Kari Millett, Spalding Elementary School; and Michelle Rowley, Sage Valley Middle School (in the Vallivue School District).

Years as a teacher: “I can’t believe how much I’ve enjoyed 24 years of teaching. I’ve taught every grade from kindergarten to sixth grade, Title 1 reading, and ELL kindergarten. I’ve taught in the states of Arizona, Utah, and Idaho.”

Years as a coach:

“I’ve coached for all four years that I’ve been involved with the EMC Project.”

What do you find most rewarding about being a mathematics coach? “I work with some of the best teachers. I just love the fact that I get the opportunity to listen to students thinking mathematically, and I’m challenged daily to push mathematical understanding in teachers, students, and myself. I’m constantly



learning from all the people I work with. I also love reading the research and trying to effectively implement best practices.”

What, in your opinion, is one of the biggest challenges that we face as mathematics educators today? “With the implementation of the Common Core Standards and, in particular, the math practice standards, teachers are being asked to teach mathematics to a much deeper level than they learned and in different ways than they were taught. This significant change in pedagogy demands enormous professional development and improved curriculum. Unfortunately, there is not enough time or resources to help every teacher right now!”

Home life: “I have two cats and a dog who is the best running and hiking buddy.”

Favorite pastimes away from school: “My first love is playing hockey. It’s great being in the outdoors while biking and hiking with friends. I also enjoy a round of golf. I’ve been so lucky to travel to some really great places and appreciate the experience of different cultures.”

What are you reading right now? “I’m currently reading the book *Number Talks: Helping Children Build Mental Math and Computation Strategies* by Sherry Parrish. Many students we work with struggle with a good number sense. This book helps teachers follow students’ thinking and pose the right questions to build understanding of number.”

One goal for this school year: “I want to complete the online course from Jo Boaler titled “How to Learn Math.” The course focuses on how to develop a growth mindset and how mindset changes students’ learning trajectories. Another important focus that I’m excited to learn more about is the importance of mistakes, struggles, and persistence. Boaler’s book *What’s Math Got to Do With It?* helped me see why we need change in our current math instruction and the way we think about math. I can’t wait to learn more about how we can improve math instruction. ▲

EMC Enters Its Fifth and Final Year

Analysis Well Under Way With Results to Follow

As the EMC Project enters its fifth and final year, the hard work of our coaches and teachers is really starting to pay off. To date, the study has amassed thousands of individual assessments and classroom observations—an enormous amount of data that should reveal plenty about the effects of regular coaching among our participants during the study.

EMC researchers are busy analyzing information already gathered in Years 1-4 and are

anxiously awaiting the data to be gathered this year.

“Our goal, as it’s been all along, is to determine the extent to which a coach’s depth of knowledge in two primary domains, coaching knowledge and mathematics content knowledge, influences coaching effectiveness,” says co-PI David Yopp of the University of Idaho. “A lot of people in our profession will be eager to hear about what we discover.”

That includes EMC participants, who often ask, “When will we get to hear results?”

The first step, Yopp ex-

plains, is completing analysis of the full set of data, which will extend into 2014. That will be followed by the publication of multiple papers in peer-reviewed journals, a process that could last a year or more after the project’s official end next June. Sharing results with participants too early, before the end of Year 5, could potentially have effects on study outcomes, so project researchers will balance that concern with coaches’ and teachers’ interest in knowing the results of their hard work and dedication.

“We’re going to make sure our participants know results as soon as possible next year, through e-mail and our Web site,” Yopp adds.

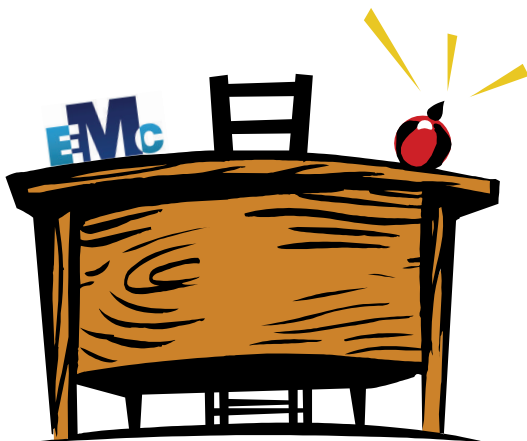
The [EMC Web site](#) currently displays some preliminary results and will stay online for long after the project ends. ▲



YEAR 5

EMC Project Events for 2013-14

Here's a quick summary of what's coming up in the EMC Project for the entire 2013-14 school year. If you ever have questions related to the project, just send us an e-mail or



check the "Participants" page on our Web site.

Coaching sessions start fresh: This is the last full school year of the EMC Project, and coaches are planning now to complete a total of *eight* three-part coaching sessions with each project teacher during 2013-14, or about one per month. (See "Coaching Sessions This Year: 8 Would Be Great!" on page 2.) At least four of these sessions should cover mathematics content focused on number and operations.

Remember, a single coaching session is made up of a pre-observation conference, an observation or model lesson, and a post-observation conference.

Coaches: be sure to keep notes on your sessions, which will help you fill out the EMC Coach Reflection and Impact Survey at the end of the year. Questions? Contact James Burroughs by e-mail at emc@math.montana.edu.

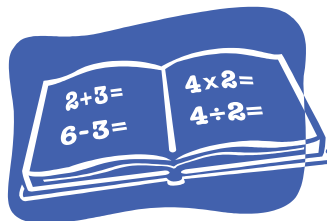
Teacher Needs Inventory surveys ready for use: Project teachers took the "Teacher Needs Inventory" last spring as it pertains to this school year. Earlier this month

coaches received one-page summary reports of the surveys, so now is a great time for coaches and teachers to use this important tool as a starting point for planning the year's coaching sessions.

Assessments for coaches currently in progress: In mid-September, coaches began their final round of three annual online assessments. Their fourth, the Coach Reflection and Impact Survey, will again go out to coaches at the end of the school year.

Teacher observations start in March: Next spring, project staff will contact all teachers to arrange their final classroom observation at each teacher's convenience. (See "Teacher Observations: What Are They For?" in the [Fall 2010 edition](#) of the newsletter.)

Assessments for teachers return in April: Project teachers will take all four of their online assessments—for the last time—near the end of the school year. The usual stipend will apply. ▲



EMC TEACHER PROFILE: STEPHANIE SHUMACHER

Name: Stephanie Shumacher

School: Warren T. Jackson Elementary, Grade 4; Atlanta Public Schools, Atlanta, Ga.

EMC participant since: October 2012

EMC coach: Rebecca Roesener

Principal: Dr. Lorraine Reich

Family: "My husband, Peter, and I have been married for four years. We recently bought our first house, and we just welcomed our first child, Willa Paige, on August 5th. In addition to our daughter we have two dogs, Jackson (*pictured*) and Lucy, and a boat. We're lucky to live close to our extended family, who have been very helpful with our new baby."



Years as a teacher: "This is my third year of teaching."

What do you find most rewarding about teaching mathematics? "My favorite thing about teaching math is seeing the light bulb come on for kids. It's so rewarding to watch a child truly understand a mathematical concept and explain it to their classmates."

What's one way that your coach has helped you in your mathematics classroom? "My coach, Rebecca, is available for anything I need. She always has great ideas for hands-on lessons and games."

What, in your opinion, is one of the biggest challenges that we face as mathematics educators today? "I find that in our current testing atmosphere, it's tough to go deep into math concepts. Students are expected to memorize facts and equations and are not asked to truly understand how to solve a problem. I hope that Common Core will help students become more engaged in math."

Favorite pastimes away from school: "Outside of my workday at school I love to walk my dogs, hike, camp, and hang out with friends."

What are you reading right now? "I'm currently reading *The Night Circus* by Erin Morgenstern."

One personal or professional goal for this school year: "My personal goal for this year is to find a good balance between home and work. My professional goal is to complete my gifted endorsement." ▲

And Don't Forget These Important Announcements!



Annual Coach Assessments Are Underway, Due Soon

It's that time of year again. On September 16 all EMC coaches received their annual fall assessments, to be completed online. For coaches who have participated in EMC since the project's beginning, this round of assessments is their *sixth*. That's a lot of important information that EMC has gathered!

These annual assessments are a crucial part of the EMC Project's research focus—a way to quantify changes in coaches' knowledge of both coaching and mathematics content over time.

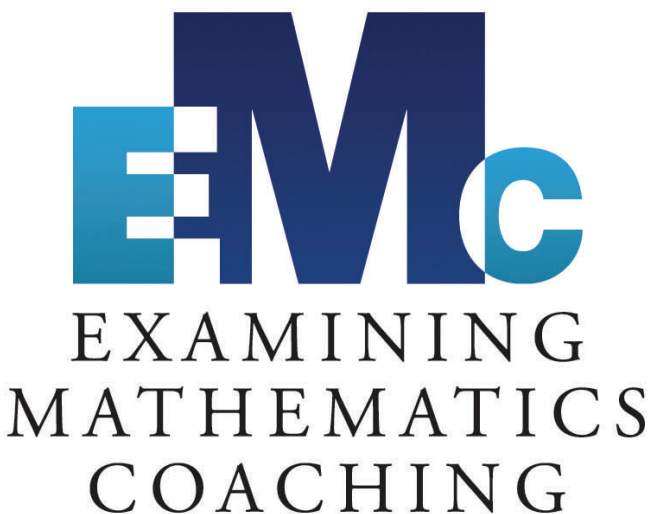
Special thanks to all coaches for completing this fall's round as soon as possible. ▲



Have You Moved?

Remember, if you ever have any changes to your e-mail address, your name, your school location or work assignment, or especially your home mailing address (where we send your stipends), please send us a quick e-mail to let us know. *The Post Office will NOT forward or hold stipend payments.*

Also, we send you several important e-mails throughout the year. Please be sure that our messages make it to your in-box and not your junk mail folder! (It may help to add emc@math.montana.edu to your address book.) Thank you! ▲



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