

What is the impact of Math
Teacher Circles?

Burning Questions

- What do teachers believe they get out of participating in a MTC?
- What do teachers learn by participating in a MTC?
- Do teachers change the way that they teach because of their MTC involvement?

To Get Answers

- We administered Mathematical Knowledge for Teaching scales (Ball et al) to summer immersion participants
- We surveyed teachers who have participated in a summer immersion (150-200 respondents each year)
- We purposively recruited 9 teachers to interview and videotape

MKT results

- Number Concepts and Operations subscale
 - 240 teachers at 14 sites took a pre and post test at the beginning and end of a 4-5 day workshop
 - Mean increase of 0.31 standard units, $p < 0.001$
- Efforts to tease out why they might have gains on this measure have not yet been successful. Potential future work: understand the relationship between characteristics of MTCs that are more likely to result in these gains.

Themes from surveys and interviews

- As a group, MTC teachers have a high level of professional engagement.
 - MTC participation is often one of a variety of PD experiences they have had (“PD junkies”)
 - Still, teachers report they get things out of MTCs that they don’t get in other forms of PD. Some see it as serendipitously complementary.
 - Some are math leaders. Some report MTCs help them see themselves or become as math leaders.

Themes from surveys and interviews

- Many MTC teachers are drawn to the community aspect of MTCs.
 - Some report that it is a haven from barren professional interactions at schools; others find it naturally extends school relationships
 - They value the professional, mathphilic nature of MTC communities

Themes from surveys and interviews

- Teachers report that participating in MTCs has an impact on their views of mathematics.
 - They value open-ended problems more.
 - They appreciate the creative effort often required to do mathematics.
 - They see mathematics as a connected subject.
 - They value experiencing mathematics as students, thereby gaining empathy for their own students’.

Themes from surveys and interviews

- Many teachers want to translate their MTC experiences into their classrooms.
 - Typically, they do not see how to do this without additional support, usually from a non-MTC source
- Participants value the opportunity to make connections to the Common Core State Standards of Mathematics
 - They are most likely to see a connection to the MPs

Case studies

- Lisa Dixon: Developing leader
 - Very strong content background and teacher PD experiences. Cites MTC experience for helping her put everything together—gave her a model for thinking deeply about mathematics and pushing students to think deeply about mathematics.
 - Phenomenal student growth after MTC participation. Tapped by principal and district for leadership roles as a result.

Case studies

- Sharon Adams: Transition to math teaching
 - Career changer without formal math background. MTC gave her confidence in teaching math.

I felt like the dumbest person in the room, but I learned so much. I felt like a lightbulb went on....

In the past, I identified as a language arts kind of person. Now I'm passionate about math.

Case studies

- Jason Cooper: Problem solving skeptic
 - Passionate about teaching and loves students. Has lots of gimmicks to keep them engaged (points, candy, competitions between teams/classrooms).
 - Teachers shows the algorithm students practice, often with the aid of mnemonics.
 - Initially saw no time for problem solving. CC made him realize he needs to figure out how to do that, but is unsure how to get started.

Future work

- Describe the variation in structure and temperament of MTCs.
- What characteristics of MTCs are associated with teacher attitudes and learning gains?
- How do MTCs fit into the broader teacher professional learning landscape?
- How does MTC participation impact the mathematicians who lead them?

Why do departments begin MTCs?

- Maintain contact with local schools and alumni
 - Placement, recruitment, insight into K-12 curriculum
- Complement/extend impact of other programs
 - MSP, GK-12, etc.
- Institutional mission
 - Institutions with STEM centers
 - State-supported institutions



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The Mission of the Mathematical Sciences Department

The mission of the Department of Mathematical Sciences at Florida Atlantic University is to foster mathematical understanding.

We strive to provide first-rate undergraduate and graduate mathematics education to our students and to increase mathematical ability in the community at large.

We seek to advance the frontiers of mathematical knowledge by engaging in innovative research and attacking fundamental problems in mathematics.

We try to meet the needs of the local community through outreach projects, school visitation, and consultation in applications of mathematics.

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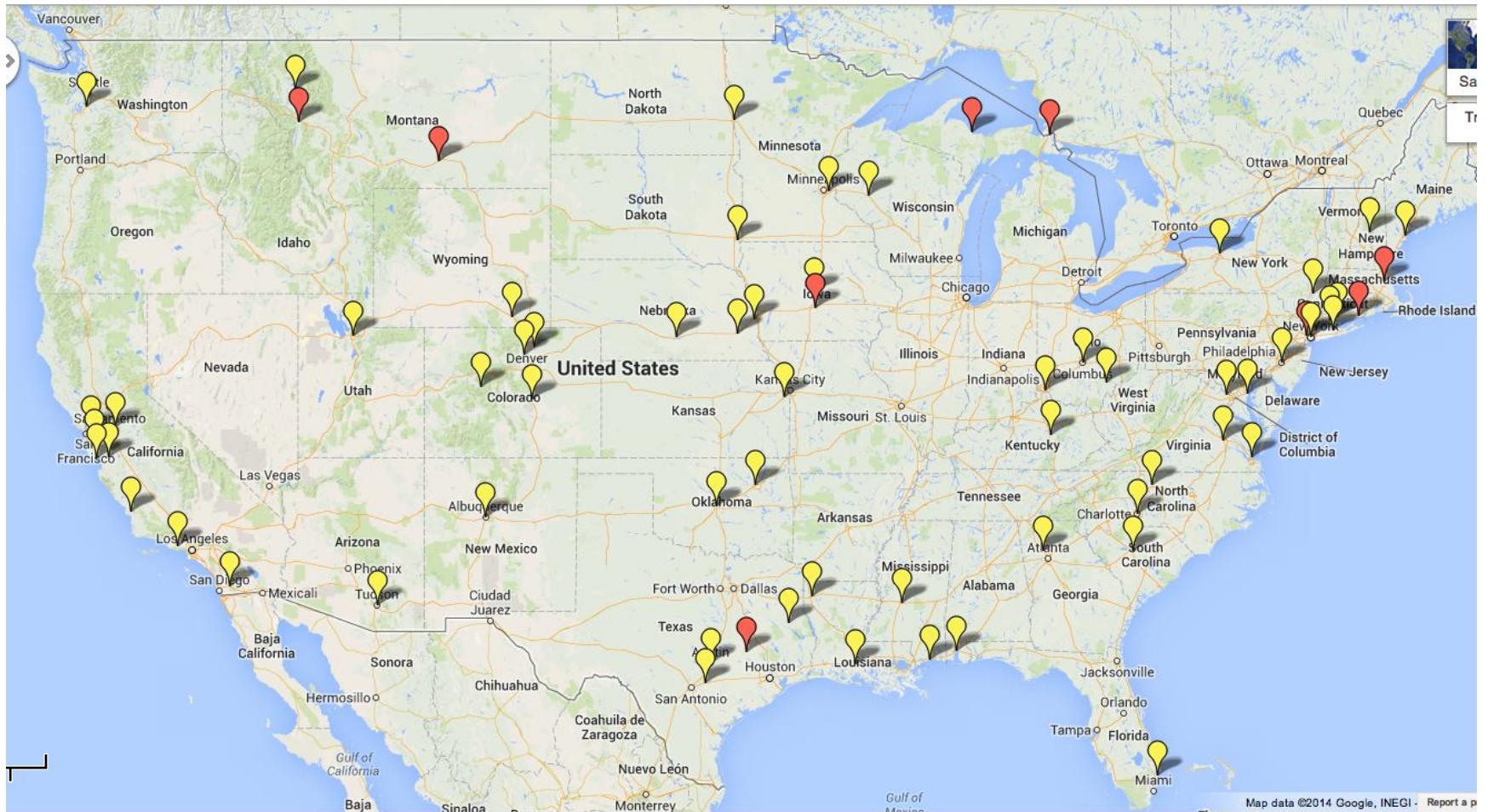
What do MTCs need?

- Meeting space
- Refreshments
- Administrative support
- Teachers
- Mathematicians

What support is there for MTCs?

- Math Teachers' Circle Network
 - www.mathteacherscircle.org
- National Association of Math Circles
 - www.mathcircles.org
- SIGMAA on Math Circles for Students and Teachers
 - <http://sigmaa.maa.org/mcst/>

The MTC Network



The MTC Network

“How to Run a Math Teachers’ Circle” workshops

- Held each summer in Palo Alto and Washington, D.C.



The MTC Network

The screenshot shows the homepage of the Math Teachers' Circle Network. At the top left is the logo, a circle of dots with the text "Math Teachers' Circle" and the Greek letter pi. To the right of the logo is the site title "Math Teachers' Circle Network" and the tagline "Building Mathematical Communities of K-12 Teachers & Mathematicians". A search bar and "Contact Us / Newsletter" link are in the top right. A navigation menu includes "Member Circles", "Upcoming Workshops", "Resources", "News", and "About". The main banner features a photo of teachers in a meeting with the text "Find A Local Circle" and "Or start your own", with a "Learn more" button. Below the banner are three sections: a quote from a teacher, a "Latest Newsletter" section with a thumbnail for "MTCircular" titled "THE ROAD AHEAD", and an "Upcoming Events" calendar listing events for Thursday, November 7, Saturday, November 9, and Monday, November 11.

Math Teachers' Circle Network
Building Mathematical Communities of K-12 Teachers & Mathematicians

Search Math Teachers' Circle
Contact Us / Newsletter

Member Circles Upcoming Workshops Resources News About

Find A Local Circle

Or start your own

[Learn more](#)

What teachers are saying: [See our Results](#)

"It reminded me of what I love about mathematics and why I studied it in the first place."

Latest Newsletter

MTCircular
Summer 2013

THE ROAD AHEAD
The View from the Intersection of Math Teachers' Circles and the Common Core

Upcoming Events

Thursday, November 7

- 1:15pm Fairfield County Math Teachers' Circle
- 3:15pm Twin Cities Math Teachers' Circle

Saturday, November 9

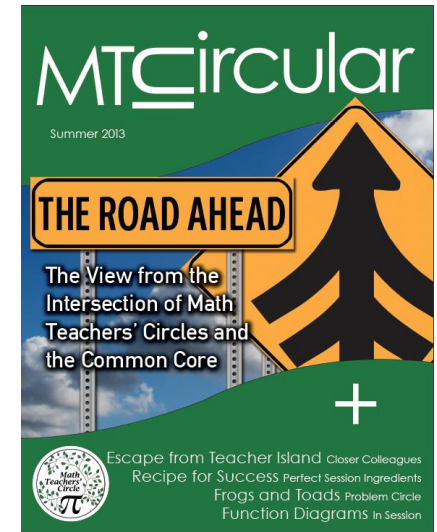
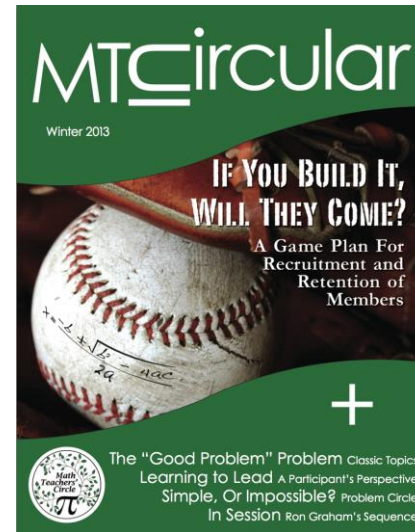
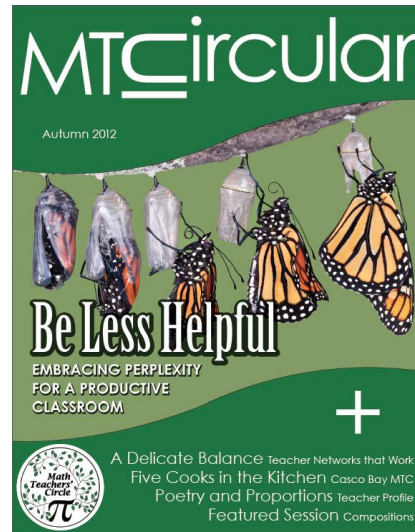
- 6:00am Southeast Ohio Math Teachers' Circle
- 9:00am Albuquerque Math Teachers' Circle

Monday, November 11

- 3:00pm North Louisiana Math Teachers' Circle
- 3:00pm Metro Atlanta Math Teachers' Circle

<http://www.mathteacherscircle.org>

The MTC Network



MTCircular, a semi-annual newsletter


The MTC Network



Math Teachers' Circle Network

Building Mathematical Communities of K-12 Teachers & Mathematicians

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The Math Teachers' Circle Network Planning Resources (private)

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Recruitment

Flyers, brochures, letters, etc.

- [Selected workshop flyers and brochures \(immersion and one-day workshops\)](#)
- [Other recruitment materials](#)
 - [Albuquerque Math Teachers' Circle flyer](#)
 - [Chippewa Valley Math Teachers' Circle brochure](#)
 - [Utah Teachers' Math Circle Summer 2009 workshop website](#)
 - [Tucson Teachers' Circle brochure](#)
 - [MTC of Austin](#)

<http://www.mathteacherscircle.org>

The MTC Network

“Math Teachers’ Circle complements my other more curricular and pedagogic activities. Math Teachers’ Circle is an activity I do for me. It is not an activity that translates directly to my classroom but it is the most important influence on the climate I set in my classroom. Each Math Circle session gives me renewed energy, enthusiasm, and empathy for the task of educating the mathematicians of the future.”