



PENNSYLVANIA ASSOCIATION OF MATHEMATICS TEACHER EDUCATORS

Newsletter

Summer 2021

President's Message

Debbie Gochenaur, Shippensburg University
PAMTE President

It is hard to believe that I am actually going back into the classroom to teach this fall. It has been almost 18 months since I've had in-person classes. I think I'm as nervous as my students. To kick off the process, my husband and I went into my office and gave it a good clean; then we rearranged the furniture, getting rid of some items to make room for two wingback chairs. I refilled my *Are You Hungry?* goody basket, too. I want my office to be welcoming and warm for me as well as for my students. I know that I need a safe space in which to be myself, to be comfortable, and to face the realities of being in the midst of people on a daily basis. I just started venturing into the grocery store in June. Sure, I've been vaccinated, but being at high risk means that I spent most of the pandemic at home with delivery. My adventures included sitting on the back porch reading or going for a walk on a country road. Big adventures included camping where we could be away from home but still stay away from people. The pandemic was a very lonely time, and I know I am not the only one feeling that way.

So, as I return to life, besides the physical office space, I've been thinking of other ways that both my students and I am going to need to adjust this fall. For one, I need to get to know my colleagues all over again; I'm sure I'm not the only one who feels like I'm a different person coming out on the other side of this thing. I've already talked with the Chair about weekly faculty lunches and social gatherings outside of work,

much like we did 10 years ago before we allowed ourselves to drift apart. Figuring it out together – enrollment declines, ever-tightening department budgets, university changes.

Even more so, though, is how we kick off our classes this fall. Yes, there were faculty teaching hybrid last year with some students face-to-face; but, as the semesters wore on, many of those students faded to just an online presence. I believe

that we all need to work toward developing community in our classrooms starting on Day 1. Sure, we should be doing that anyway, but it is more crucial now. We are going to have students who have lost a loved one to the pandemic, some of them lost more than one family member or friend. Students who themselves have attended classes

remotely with their videos off, unengaged, drifting through the work. We need to teach them how to engage with each other and with the material. Give them a reason to attend. To participate.

This fall will be like having two freshmen classes all wrapped up in one – the new starting freshmen and the sophomores who hadn't yet attended face-to-face classes. I am looking forward to getting to know them. To chatting about class. To talking about life.

I'll be thinking about all of you as the semester kicks off – here's to great beginnings!



PAMTE Symposium 2021

Heather Ervin, PAMTE Symposium Chair
Bloomsburg University of Pennsylvania

The 15th Annual PAMTE Symposium was held virtually May 12th and 13th. Thank you to all who participated and helped to make the PAMTE conference a success! There were many attendees and knowledgeable speakers including Dr. Michael Steele (rotating program officer at the NSF and Immediate Past President of AMTE).

Conference goers took part in two days of collaboration and networking in an effort to improve mathematics education at their respective schools and beyond. The Working Group Lunch on Wednesday, led by Valerie Long and Julien Corven, provided insight into recommendations for the mathematics curriculum in elementary teacher preparation programs.

Although grateful we were able to connect with each other virtually this year, we are certainly looking forward to seeing everyone again in person next Spring! Dates for the upcoming 2022 Symposium will be coming your way soon!"

Working Group Lunch Summary

Julien Corven, *University of Delaware*
Valerie Long, *Indiana University of Pennsylvania*

This year's Symposium Working Group Lunch was a conversation among mathematics teacher educators about challenges to and recommendations for ensuring that elementary teachers are well-prepared to teach mathematics. Participants shared anecdotal evidence from practicing teachers who said that they felt prepared to teach reading well but did not feel the same about mathematics. The consensus was that more time is needed, as expecting expert performance after nine or fewer credits of instruction is unrealistic. Some suggestions for addressing this concern were to advocate for separate methods classes for each content area, integrate field experiences into content courses (and/or combine content and methods courses), and follow program graduates into the field for ongoing professional development to extend the time for learning beyond the preparation program. Be on the lookout at upcoming conferences for opportunities to continue this conversation!

Fran Arbaugh: MTHED 411 Teaching Secondary Math 1

Motivated: Designing Math Classrooms Where Students Want to Join In by Liana Seidel Horn

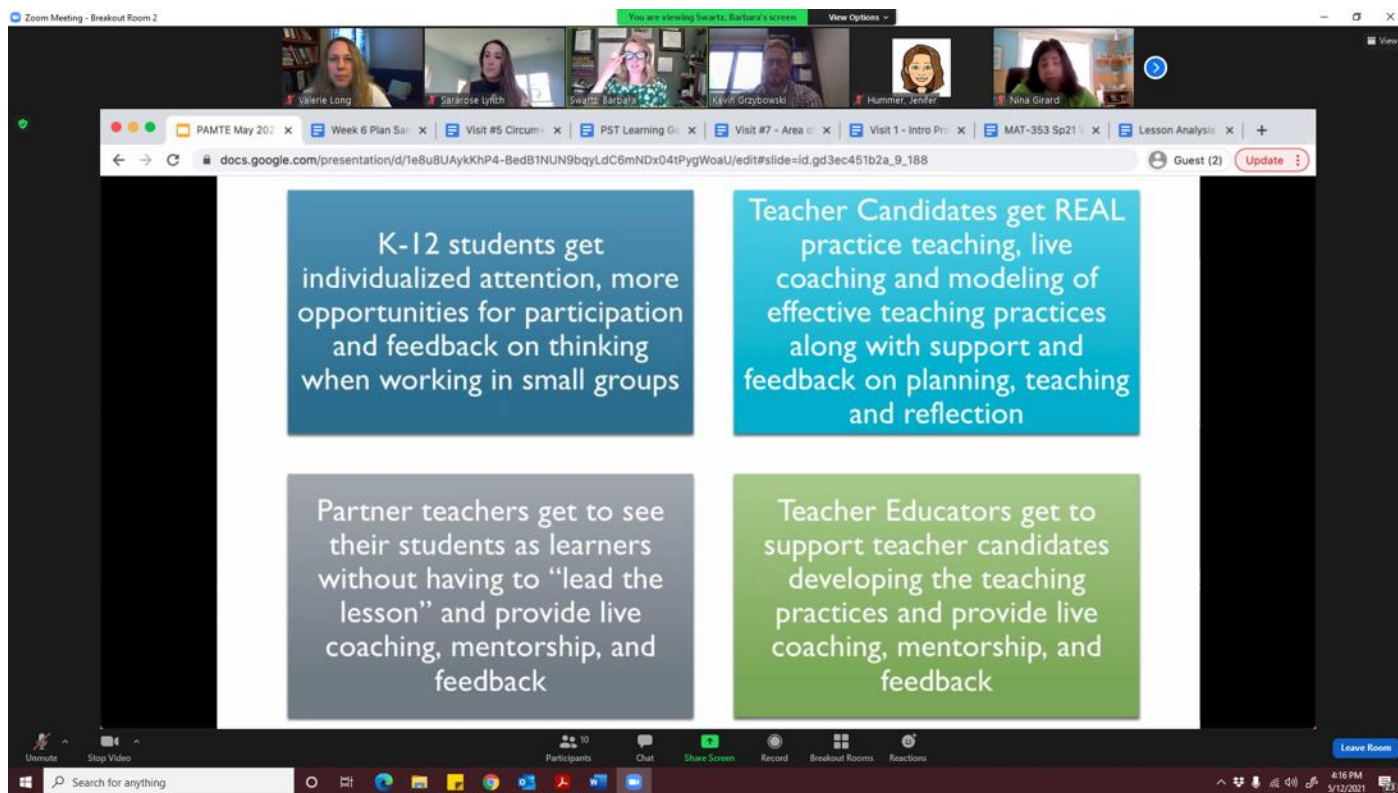
5 Motivational Constructs

- Students' sense of *belongingness*
- The *meaningfulness* of learning
- Students' *competence*
- Structures for *accountability*
- Students' *autonomy*

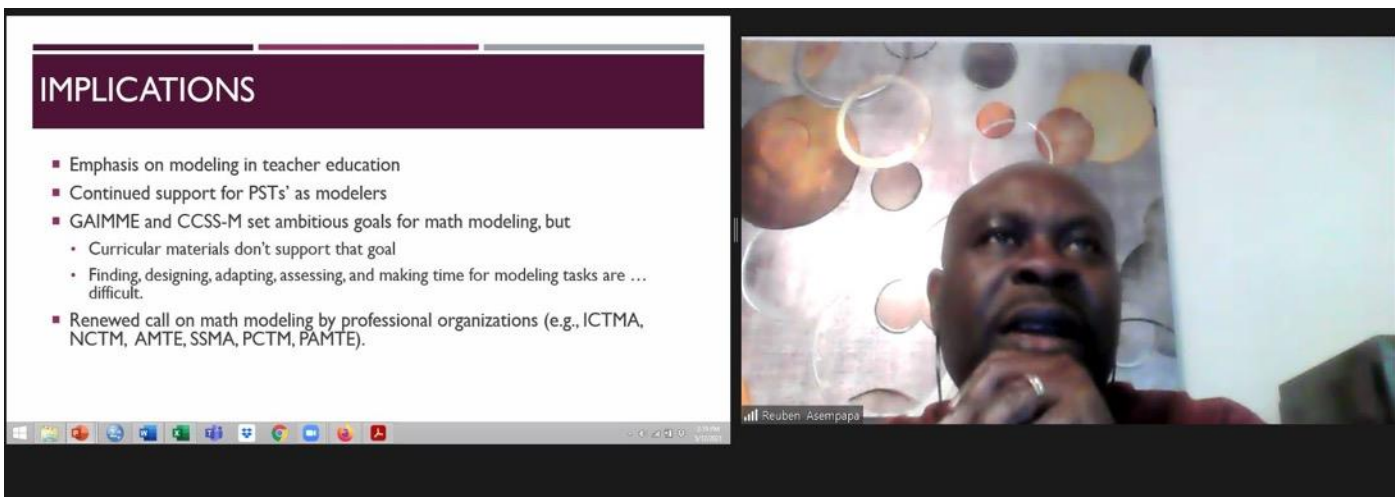


Fran Arbaugh of Penn State University leads a round-table session titled: *What are We Doing about Equity, Diversity, and Inclusion in Secondary Methods?*

PAMTE Symposium 2021 continued



Barbara Swartz of West Chester University and Sararose Lynch of Westminster College give a presentation titled: *Learning to Teach Mathematics Together: How Mediated Field Experiences Support Teacher Candidates in Connecting Theory to their Teaching Practice.*



Reuben S. Asempapa of Penn State Harrisburg concludes his presentation titled: *Developing Preservice Teachers' Competencies in Math Modeling Practices.*

PAMTE Symposium 2021 continued

Where is the Next Generation of Math Teachers? Presentation Summary

Deborah Gochenaur, Shippensburg University
Kelly Brent, Carlisle High School

Teacher turnover has been an issue for years; the most recent data is showing that almost 8 percent of teachers leave the profession each year. At most risk are younger teachers, those who are early in their career – special education teachers and science and math teachers are at higher risk for turnover. [1][2]

The symposium keynote speaker, Michael Steele, AMTE Past President, recommended that math teacher educators (MTE) work to make the joy of teaching visible and accessible to students, modeling high-quality teaching and continued professional growth. Mike suggested that we work to nurture partnerships between districts and universities.

To help spread the word, MTE can adapt the materials from the Get The Facts Out website. [3] They have a variety of great materials – posters, brochures – and, most importantly, facts about teaching that will help encourage students to pursue math teaching as a career.

We need to review our recruiting strategies; this is not just the domain of the Admissions Office! Strategies can include hand-written notes to prospective students, reaching out via email, etc. Update your website as a recruiting tool. [4] Look at your website as if you were considering becoming a

teacher. How appealing does your web site make that sound? Use information from Get the Facts Out to give a well-rounded look at teaching as a career.

Do you have a working relationship with the mathematics department chair, or head teacher, at your local high school / middle school? Local school districts are looking for help with Grow Your Own programs. How can your university help? Is there a dual enrollment introductory education course available? Does the local high school have a future educator's club, like Educators Rising? Can you help get one started? Start a conversation.

Work with your local community college on a clear pathway to licensure. Do you have a 2+2 agreement with your local community college? Can transfers graduate in a total of four years? Again, start a conversation. As MTE's we have a responsibility to help our local school districts in working to develop the next generation of math teachers.

[1] 2015 Teacher Turnover: Stayers, Movers, and Leavers, The Condition of Education, IES / NCES

[2] Nguyen, Tuan. (Jan 2021). Linking school organizational characteristics and teacher retention: Evidence from repeated cross-sectional national data, Teaching and Teacher Education, Volume 97.

[3] <https://getthefactsout.org/>

[4] <https://www.frontlineeducation.com/solutions/recruiting-hiring/insights/trends-in-teacher-preparation-programs/>

Cynthia Taylor and Janet White of Millersville University demonstrate using a jamboard during their presentation titled: *Returning to F2F: What instructional Strategies will you Retain?*

PAMTE Symposium 2021 continued

Continuous Improvement: Supporting Teacher Candidates to Learn from Teaching Presentation Summary

Jennifer Hummer

West Chester University of Pennsylvania

The *Standards for Preparing Teachers of Mathematics* suggested that “well-prepared beginning teachers of mathematics recognize that the processes of data collection, analysis, and reflection and the corresponding revision to classroom practices are systematic and continuous and grow in sophistication with teaching experience. Eventually, this deliberate examination of practice helps well-prepared beginners become more reflective about their own teaching practices” (AMTE, 2017, p.16). Thus, in my teaching, I wanted to understand more about how to engage teacher candidates (TCs) in continuous improvement and support them to learn from teaching (see Hiebert & Morris, 2012).

In education, continuous improvement may be referred to as action research (Norton, 2009), Plan Do Study Act (PDSA) cycles (Deming, 2000; Institute For Learning, 2018), or lesson study (Lewis, 2015). Engaging in continuous

improvement has resulted in improving teachers’ instruction (e.g., Lewis, 2015). Often, these continuous improvement practices take place over several weeks or months. Thus, implementing these practices is not always feasible for TCs or inservice teachers. As discussed by Dr. Steele during his PAMTE 2021 Symposium keynote address, his team addressed this challenge by developing micro-credentials. Within the project, he described secondary math and science teachers carried out action research within shorter periods than traditional action research. In alignment with continuous improvement and micro-credentialing, I investigated how TCs can utilize improvement science through lab assignments implemented in field placements. More specifically, I asked: In what ways do lab assignments support teacher candidates as they learn to teach during their field experiences?

The participants were TCs enrolled in a secondary STEM teaching methods course while completing their teaching field experience. Through lab assignments, the TCs planned activities, implemented the activities, and reflected on their practice. For my PAMTE presentation, I focused on the PDSA lab. A

Virtual Teaching Tools	Student Participation/Engagement	Pedagogy
<ul style="list-style-type: none"> Will the students use this [Zoom reactions] to “raise their hand” in class to answer a question or contribute to a discussion? 	<ul style="list-style-type: none"> How can I engage my students and foster interest in the activity? 	<ul style="list-style-type: none"> Will I anticipate all responses? How many responses can I anticipate?

Figure 1: Examples of TC’s Questions for the PDSA Lab

Virtual Teaching Tools	Pedagogy
<ul style="list-style-type: none"> For the next cycle, I’d like to test out a way to poll students with immediate results for the teacher. 	<ul style="list-style-type: none"> Continue to focus on activities that will illicit more responses and thought from students. Engaging in the activity had the most success.

Figure 2: Examples of TC’s Plans for Improvement

Continued on the next page

PAMTE Symposium 2021 continued

Continuous Improvement: Supporting Teacher Candidates to Learn from Teaching Presentation Summary continued

PDSA Template was utilized to support the TCs by providing space for the TCs to develop research questions, design a brief study, collect data, analyze and study the data, reflect on learning, and plan for next steps (Institute For Learning, 2018). The data were analyzed using constant comparative analysis to discover themes.

Within the PDSA lab, the TCs acted as researchers, reflected on their teaching, and discussed how to improve their instruction. For example, the TCs focused on implementing virtual teaching tools, increasing student participation or engagement, and implementing pedagogical strategies. These foci were evident through research questions the TCs developed (see Figure 1). Then to support continuous improvement, when the TCs reflected on their practice, they planned to improve their use of virtual teaching tools or their pedagogical strategies (see Figure 2).

In conclusion, I learned more about how I can support TCs to engage in continuous improvement. These lab assignments typically required no more than ten hours of the TCs time, so they were able to complete multiple PDSA cycles within a semester. Thus, I look forward to continuing to use lab assignments in my methods courses. Doing so will support beginning teachers to experience and learn how to execute the processes of data collection, analysis, and reflection to plan and implement effective instruction (AMTE, 2017).

Acknowledgements

Thank you to my students in the Class of 2021. We survived the pandemic! Excellent work!

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- Lewis, C. (2015). What is improvement science? Do we need it in education? *Educational Researcher*, 44(1), 54–61. <https://doi.org/10.3102/0013189X15570388>
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PAMTE Symposium 2021 continued

Elementary Arithmetic: Still Testing at the College Level? *Presentation Summary*

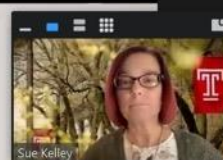
Heather Ervin, Bloomsburg University of Pennsylvania, hervin@bloomu.edu

Lisa Lister, Bloomsburg University of Pennsylvania, llister@bloomu.edu

- The needs of our students are constantly evolving.
- Are exams testing arithmetic skills of preservice elementary teachers beneficial or outdated?
- Corequisite courses may help these students succeed.
- Look for data on our first corequisite courses at the next Symposium!

28 IMPLICATIONS

- Student Heuristic for Video Selection and Use
- Implications for mathematics teachers
 - Teachers may be requiring students to use a canonical method for solving problems (Buchbinder, Chazan, & Capozzoli, 2019)
 - Student responsibility to use the canonical method may be tied to a responsibility held by their teacher to teach the canonical method
 - Teachers must be aware that their students hold the responsibility to the method they are teaching when providing supplemental instructional videos
 - Teachers who want to encourage flexibility
 - Show students multiple representations
 - Use videos as a teachable moment in the classroom



Sue Kelley of Temple University concludes her presentation titled: *Student Use of and Selection of Mathematics Instructional Videos*.



PAMTE Election Updates

Gina Foletta

Penn State University

We had a good turnout (74% responses) for the election last March and welcome the three new PAMTE Board members who are eager to begin (or continue) their positions.

Jodi Styers assumes the role of President-Elect. She is currently an associate teaching professor at Penn State Behrend. Jodi has been active in PAMTE for several years serving as chair of the Mathematics Education Coalition/Advocacy committee in 2018, and co-chair with Kate Remillard since 2019. She currently teaches pre-service elementary and early-childhood students and is the university supervisor for the secondary mathematics education program. Jodi is also the co-primary investigator of Behrend's Robert Noyce Scholarship Program.

James Preston continues in the role of Treasurer. He is currently an associate professor and assistant to the Dean at Slippery Rock University. James has been active in PAMTE for 15 years and is also the webmaster.

Carol Buckley assumes the role of Member-at-Large (Private). She is currently an associate professor for Messiah University. Carol has been active in PAMTE for five years. She teaches education as well as methods courses for primary and intermediate education majors. Carol's primary research interest is in mathematics attitude/anxiety in a variety of populations.

PAMTE OFFICERS AND COMMITTEE CHAIRS

PRESIDENT	Debbie Gochenaur <i>Shippensburg University</i>
PRESIDENT-ELECT	Jodi Styers <i>Penn State Behrend</i>
SECRETARY	Janet White <i>Millersville University</i>
TREASURER	James Preston <i>Slippery Rock University</i>
MEMBERS AT LARGE	Carol Buckley <i>Messiah University</i>
	Heather Ervin <i>Bloomsburg University</i>
	Gina Foletta <i>Penn State University</i>
MEMBERSHIP	Hartono Tjoe <i>Penn State Berks</i>
NEWSLETTER	Sheri Stayton <i>Lewisburg, PA</i>
WEBMASTER	James Preston <i>Slippery Rock University</i>

The 2021 PME-NA Conference is coming to Philadelphia in October Volunteers NEEDED

Kim Johnson

West Chester University (co-chair)

The 43rd annual conference of the International Group for the Psychology of Mathematics Education, North American Chapter (PME-NA) is going to be held at the Sheraton Downtown Philadelphia October 14-17, 2021. Our 2021 conference theme, “**Productive Struggle: Persevering Through Challenges**,” attempts to re-frame challenges through the lens of productive struggle. We aim to embrace the power of appropriate struggle as an opportunity for learning and growth. How can mathematics education researchers use this time of crisis as an opportunity for transformation? What new possibilities for mathematics learning and teaching were revealed through the unprecedented changes of 2020? And how can our existing research endeavors persevere through the current situation to reach new insights about mathematics teaching and learning?

If you want to learn about these ideas in mathematics education join us in Philadelphia. For more information on the conference, go to the website: <http://www.pmena.org/pmena-2021/> you can register and book a hotel room.

Three years ago, when I proposed chairing this conference and hosting it in Philadelphia, PAMTE offered to be a sponsor for the meeting. I have been asked what we need most, and I would respond with volunteers. The conference will be a hybrid of virtual and in-person sessions where we will need **session facilitators** for each research presentation. We currently will have 64 sessions on Friday and Saturday and 32 sessions on Sunday.

If you are planning on attending the conference or would be willing to volunteer to facilitate one or more sessions. Please contact me (Kim Johnson) at kjohnson2@wcupa.edu or 2021PMENA@gmail.com.

CONFERENCE DATES

Sept. 22-25 2021	NCTM Annual Meeting <i>Atlanta, GA</i>
Oct. 14-17 2021	PME-NA <i>Philadelphia, PA</i>
Oct. 27-29 2021	NCTM Regional Meeting <i>Phoenix, AZ</i>
Nov. 6 2021	PreService Teacher Day - EAST <i>Millersville University</i>
Nov. 6 2021	PreService Teacher Day – WEST <i>Duquesne University</i>
Nov. 17-20 2021	NCTM Virtual Meeting <i>Virtual</i>
Feb. 2-4 2022	NCTM Regional Meeting <i>New Orleans, LA</i>
Feb. 10-12 2022	AMTE Annual Conference <i>Las Vegas, NV</i>
Mar. 16-18 2022	NCTM Regional Meeting <i>Indianapolis, IN</i>
Aug. 3-6 2022	MAA Mathfest & Annual Meeting <i>Philadelphia, PA</i>
Sept. 28-Oct. 1 2022	NCTM Annual Meeting <i>Los Angeles, CA</i>
Nov. 30-Dec. 2 2022	NCTM Regional Meeting <i>Baltimore, MD</i>
Feb. 2-4 2023	AMTE Annual Conference <i>New Orleans, LA</i>
Aug. 2-5 2023	MAA Mathfest & Annual Meeting <i>Tampa, FL</i>

PRE-SERVICE TEACHER DAYS THIS FALL

Save the Date!

Eastern Pennsylvania PRE-SERVICE TEACHER DAY

Saturday, November 6, 2021

9:30 am – 3:30 pm

Millersville University

Featuring:

- Keynote address
- Presentations and panels spanning K-12 math education
- Thematic Sessions
 - Taking Action
 - Make it, Take it
 - Growth Mindset/Mindfulness
 - Technology/Special Issues



Network with pre-service and practicing teachers from across the state!

Exchange ideas, resources, experiences, and best practices!

Build your professional teaching career!

Registration open
Sept 6th – Oct 22nd

Sponsored by PCTM and PAMTE

For more information, contact Cynthia Taylor: cynthia.taylor@millersville.edu

Save the Date!

Western Pennsylvania PRE-SERVICE TEACHER DAY

Saturday, November 6, 2021

9:30 am – 3:30 pm

Duquesne University

Featuring:

- Keynote address
- Presentations and panels spanning K-12 math education
- Thematic Sessions
 - Taking Action
 - Make it, Take it
 - Growth Mindset/Mindfulness
 - Technology/Special Issues



Network with pre-service and practicing teachers from across the state!

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Registration open
Sept 6th – Oct 22nd

Sponsored by PCTM and PAMTE

For more information, contact Melissa Boston: bostonm@duq.edu

PAMTE Affiliate Updates

Valerie Long

Indiana University of Pennsylvania

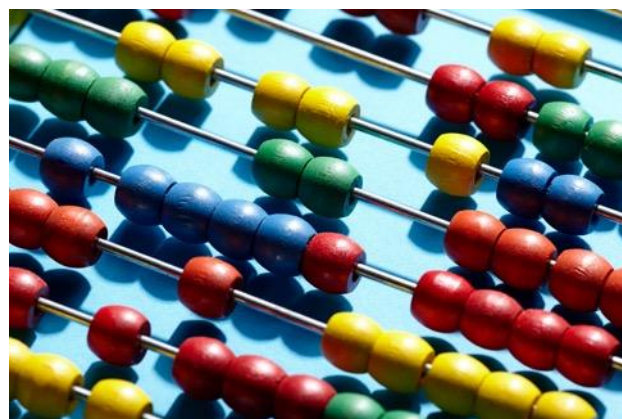


The Pennsylvania Council of Teachers Mathematics annual conference was held recently on August 5 as a one-day virtual event. The conference hosted approximately 300 teachers. Folks who registered for the conference can enjoy watching recorded videos that will be made available soon. The next annual conference is set as an in person event on July 20-22, 2022 at the Hilton Harrisburg. The keynote speakers will be Sara VanderWerf, Crystal Watson, Bobson Wong, and Dr. Kari Kokka. The new president, Dave Kennedy from Shippensburg University, started his term at the 2021 conference. Also, the board has some new appointments, Rob Bair delegate at large, Marian Avery secretary, Lisa Allen eastern regional representative, and Shannon Wenger central regional representative. The PCTM magazine is looking for article submissions. August 15 is the deadline and the theme from the spring issue, Equity in Mathematics, is continued for the fall issue. Please make your submissions to pctm.editor@gmail.com.



AMTE's annual conference will be in Las Vegas, NV from February 10-12, 2022 at the Hilton Lake Las Vegas Resort and Spa. Conference registration will open in late August 2021. Sandra Crespo will be the Judith Jacobs speaker, and the link below provides information about costs. PAMTE members may find the *Professional Learning* tab on AMTE's website useful as it provides great online resources. These online resources include *Tech Talk*, *Webinars*, and *AMTE Rapid Response Videos*.

<https://amte.net/content/2022-annual-amte-conference>



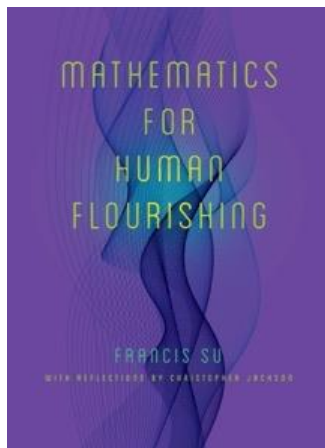
Mathematics Education Coalition Corner

Recommendations: 2 Reads to Put on Your Radar + 1 Re-Read

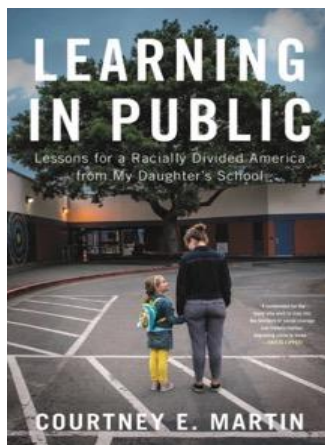
Kate Remillard
Saint Francis University

For those who care deeply about humanity, love mathematics, or wildly do both, there may not exist a more exquisite read than *Mathematics for Human Flourishing*. Published in 2020 by Yale University Press and authored by Francis Su, the Bnediktsson-Karwa Professor of Mathematics at Harvey Mudd College and a past president of the Mathematical Association of America, this remarkable book aims to reveal how mathematics is intimately tied to being human. There is a delightful interweave of mathematics and compelling stories through the thirteen chapters, each centered on a human desire or virtue. Play, beauty, permanence, freedom, community, and love are a few examples. This book will serve as balm for any mathematics educator in need of rejuvenation or as a crystalline reminder of the profound value of their work. It would also make an impactful gift for graduates about to embark on careers in teaching.

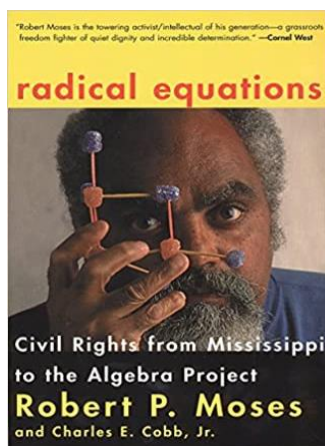
Just published on August 3, 2021 by Little, Brown and Company, *Learning in Public: Lessons for a Racially Divided America from My Daughter's School*, is already getting high marks. Written by Courtney



Martin, an author, journalist, and activist, the book reportedly reads like a memoir, while simultaneously illuminating the historical national educational landscape, from segregation to school choice. By all accounts, the tone of the book is compassionate, but should challenge personal action to go beyond 'talking the racial justice talk' and move toward 'walking the racial justice walk.'



With the passing this July of Bob Moses, civil rights leader and an iconic voice for mathematics education as a justice issue, might it be time to dust off your copy and re-read *Radical Equations: Civil Rights from Mississippi to the Algebra Project*? The final chapter of the book focuses on 'shaping demand.' It equates demanding access to mathematics literacy to demanding equal voting rights, since both are key to economic and civic equality. Strikingly, this discussion seems perhaps more relevant now than even twenty years ago, when the book was published by Beacon Press. We can no doubt continue to learn and draw on the hard-earned wisdom of Moses shared in this text, an unrivaled contribution to the field.



PAMTE is now on Facebook
<https://www.facebook.com/groups/PAmatheduc/>

Visit the PAMTE website at
www.pamte.org