

Journal of Mathematics Teacher Education in Texas

Online Journal of the Association of Mathematics Teacher Educators in Texas

The Importance of a Sustained Mentor Program in Preparing Math Educators

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President's Message

Sarah Smitherman Pratt

What a year it has been for everyone. I know each of us is exhausted beyond what we had imagined possible, striving to adapt and accommodate as we continue to navigate this educational landscape in the midst of a pandemic – compounded by a snowstorm that shut down most of our state for almost a week! Just pause and consider where you were last January of 2020, in May of 2020, your expectations as you started the fall of 2020, and where you are now. What have you learned from this historical time? What will you take with you into the next year?



As I consider my answer, I reflect on the wonderful, monthly, Friday afternoon conversations with my colleagues from around the state. What a joy to get together for some laughs and solidarity, regardless of where we currently reside. I think it is beautiful that the wide expanse of the state of Texas does not limit our opportunities to connect with each other with this new technology that allows us to gather virtually. I hope that as we conclude this academic year and consider our activities for the upcoming year, you will let the AMTE-TX board members know your thoughts regarding our monthly Tea-Times.

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During this summer we hosted a Tea-Time on June 11 to discuss opportunities for publications. Thanks to all who attended! Also during this summer, CAMT will be holding its sessions virtually. We have several sessions that are included on the schedule, and we hope you will join and participate. We will also hold our annual business meeting during this time. An invitation will be sent to all AMTE-TX members. We hope you will attend!

The 2021 Fall Conference will be held on September 18, and it will be virtual. Do not let that deter you, however! The 2021 Conference Committee will offer us opportunities for informal conversations in smaller settings in between our main sessions and presentations. The theme is "Revealing and Reframing: Building Towards a More Equitable Future for PK-12 Teacher Preparation." I am also excited to announce that our keynote speaker will be Dr. Alejandra Sorto of Texas State University. We hope you will join us for a great day of conversation, information, and connection.

Lastly, please look for upcoming announcements regarding meetings, elections, and award opportunities. Our web site continues to have updated information on important events and information. Also follow us on [Facebook](#) and [Twitter](#). I hope to see you all at our next gathering!

A Message from the Co-Editors

Greetings, Texas Mathematics Teacher Educators!

I (Cody) have been seeing lots of last-day-of-school pictures of my friends' and colleagues' children in my social media feeds lately. I have been thinking about the symbolism in these posts: they mark the end of the most challenging and demanding school year that many of us have experienced, but they also illuminate the joy and hope that many of us find in what lies ahead. At the time of the writing of this message, the rolling seven-day average for new COVID-19 cases in Texas has dropped below 2,000 per day – a good sign that even though there is still work left to do in suppressing the pandemic, we are on the road to recovery.

Like many of my colleagues, I am looking forward to the opportunity to teach fully in-person classes this fall. I'm looking forward to facilitating collaborative activities in class and being able to glance at multiple groups' work quickly by just turning my head, rather than configuring my breakout room settings. I'm looking forward to having access to all the forms of non-verbal communication that are so easily lost in videoconferencing. And of course, I'm looking forward to being able to go to an in-person barbecue or pool party this summer.

But for all the "looking forward" I'm doing, I think I'd be remiss if I didn't look back at a couple of important lessons I learned from a year of doing things differently.



1. Our teachers are just incredible public servants. My classes this year were fully online. While these might not have been ideal, they were much more straightforward than any of the classes I witnessed that had to manage simultaneous in-person and online participation – like those that most K–12 teachers had to teach this year. Think about everything you do in the moment as a teacher to maintain the quality of the mathematics, keep students engaged and curious, protect equity and access for all students. Now imagine doing all of that simultaneously for two separate audiences for whom equity, engagement, and even the mathematics might look very different. That’s what our teachers had to do every day for an entire school year while teaching as many as three or four different courses. The simple fact is that teachers carry our communities on their shoulders, and they deserve a ton of credit for what they did this year.
2. The pandemic has created different challenges for each of us, but it has also created opportunities for some of us to demonstrate excellence in unusual settings. In Spring 2020, I was teaching a calculus course that was forced to go online. Some of my students who hadn’t thrived in the in-person setting were remarkably well-prepared to learn in an online setting; some of them were instrumental in helping their classmates (and me!) adapt to online learning. For some of my colleagues with disabilities, teaching in person had presented challenges that most of us are privileged not to face every day. When we started working from home, these colleagues were able to do their work without constantly having to negotiate these challenges. I think we’re learning that different people excel in different environments, and we should lean into this where we can. If in our “return to normalcy” we go back to expecting all students and faculty to perform in the same ways under the same conditions all of the time, we will have lost a real opportunity for growth in our profession.

Yasemin and I are wondering: what lessons have you learned that you think our profession should take away from this unusual and trying year? We’d love to hear from you! If you would like to submit a message of up to two double-spaced pages on lessons learned from scholarship, teaching, and service in the pandemic era, we will consider it for publication in an upcoming issue.

We wish you good health, stimulating and fulfilling work, and a joyful summer.

Best wishes,
Cody Patterson and Yasemin Gunpinar
Co-Editors, *Journal of Mathematics Teacher Education in Texas*

Call for Letter Submissions

What lessons have you and your colleagues learned from scholarship, teaching, and service in a pandemic year that you think we should carry into our future work? Possible themes include, but are not limited to:

- Using technology to enhance preservice teachers’ learning and professional preparation
- Preparing preservice teachers to respond to the unexpected
- Protecting equity and access for learners from traditionally marginalized groups

Please limit your message to **two double-spaced pages**. Submit letters **by July 20, 2021**.



The Importance of a Sustained Mentor Program in Preparing Math Educators

Amber E. Wagon
Stephen F. Austin State University

Keith Hubbard
Stephen F. Austin State University

In traditional education preparation programs across Texas, mentoring occurs during various field experiences. Though these experiences can vary in length and context, teacher candidates are paired with mentor teachers as they complete their semester-long clinical teaching. This means that universities rely on local public-school educators to guide teacher-candidates through formative field experiences. This can be problematic as public-school educators are asked to do “the work of teacher education in addition to fully carrying out the responsibilities of classroom teaching” with little to no compensation (Zeichner, 2009, p. 90). Additionally, through no fault of their own, most public-school educators are not trained to be mentors, and often have not been afforded the time and resources needed “to implement a more active and educative conception of mentoring” that is effective in preparing new educators (p. 90).

A group of faculty and staff from the College of Sciences and Mathematics, in collaboration with the College of Education, at Stephen F. Austin State University (SFA) sought to change this by implementing a new mentor system. In 2012 they were able to begin their work on this goal when they received a grant from the National Science Foundation to implement the Robert Noyce Scholarship program; they titled the program SFA’s Talented Teachers in Training for Texas or T4. Through T4, the teacher candidates were afforded the opportunity to work with a veteran mathematics teacher, Lisa. Lisa was hired through the grant to serve in this mentor capacity based on her decades of classroom experience as a public-school mathematics teacher. As a representative of T4 Lisa served as an additional mentor alongside the teacher candidate’s mentor teacher of record. She mentored the T4 math teacher candidates throughout the entirety of their undergraduate experience, including clinical teaching. Teacher candidates Chris, Beth, Amanda, and Robert were each placed in a mathematics classroom at a local high school. They reflected on their experiences as mentees at the conclusion of clinical teaching.

What We Learned

The findings revealed that the sustained mentoring relationship with a STEM teacher was beneficial in helping T4 teacher candidates become qualified, effective classroom teachers. The following themes emerged from our analysis of the benefits the teacher candidates described.

Encouragement and Praise

The ability of a mentor to provide both praise and encouragement to the T4 teacher-candidates was important. Chris explained that he had trouble with classroom management during his internship, but through meeting with his mentor weekly he found that they “encourage us and you know, assured us that it’s not a one-day battle.” He went on to explain “through hearing many different perspectives through our T4 mentor that helped me to become natural” at classroom management. Others echoed similar experiences. T4 teacher-candidate Amanda explained that having her mentor “telling you what you are doing right, what your strengths are” was “like having a confidence booster” (Wagon, Hubbard, & Cross, 2020, p. 57). The supports and directions were specific and consistent, as Lisa was a constant presence in the teacher candidates’ teacher training. Lisa connected with the T4 teacher candidates during their junior and senior years, meeting with them biweekly, working with them on internship and student teaching placement, then culminating in supervising their clinical teaching.

Content-Specific Expertise

One important benefit of a T4 mentor was their content-specific expertise, which generated a confidence in the advice and feedback the teacher candidates received. Chris revealed that he felt “like the conversations that we have are really priceless and you know very meaningful to us” as future math teachers. Another T4 teacher candidate, Beth, explained that she trusted the advice because “it came from a veteran and it may be easier for me to buy into than like things that our administrators might say, because most administrators have not taught math or were not in the environment like we are in. It's a totally different world, and especially when you're a young female. And so, it's nice to hear from someone who has been in your shoes” (Wagnon et al., 2020). Clearly, the teacher candidates valued the feedback they received from Lisa in part because they understood she had mathematics teaching experience.

Sustained Mentorship

In traditional teacher preparation programs, the official mentorship often concludes with graduation. However, in T4 the mentors were able to continue to offer guidance and assistance to former T4 teacher candidates who became classroom teachers. Chris explained that “because the program is a mentorship in college and then also afterwards it definitely adds [up]” and “we discuss things that you typically won't discuss in an education classroom or even a math classroom.” With the T4 funds, Lisa was able to travel to teaching locations to assist T4 teacher candidates following their graduations. Chris revealed that “I can remember, you know, sessions with Ms. Lisa coming down mid-year and she's helping us, you know, think of how we can get students to think outside the box.” Robert, another T4 teacher-candidate, echoed this, explaining, “I just look forward to the mentorship, there are so many things you don't know about teaching like how to react in certain situations. Having a network, we will have people we can talk to” and serve as guides.

Conclusion

Though we recognize that unique opportunities of T4 were facilitated through grant funding, we contend that in a time of reexamination of best practices, teacher preparation programs should reevaluate methods for improving mentoring and field experiences. Our faculty continue to consider ways to enhance this mentoring program and are examining techniques to further strengthen the public-school connections to better support teacher candidates learning, as research consistently recommends (Darling-Hammond, 2006; Tatto, 1996).

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When PSTs Become the Teachers: Creating Authentic Experiences for PSTs to Learn

Ann Wheeler
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Texas Woman's University

Keyaire Williams
Texas Woman's University

Julianna Baumgartner
Texas Woman's University

Preservice teachers (PSTs) at all grade levels often are required to create lesson plans and activities that could potentially be utilized in their future classrooms, but how do they truly know if the lessons and/or activities would make sense to students or if students would enjoy them? Through Texas Woman's University's Graduate Research Associate Awards and Experiential Student Scholars programs, we have begun having PSTs test out their lessons in our mathematics methods and content classes for middle school teachers. We will detail two such projects, one on children's literature and one on science-based mathematics lessons, which were completed during the 2020–2021 academic year.

Children's Book Writing

As part of TWU's Graduate Research Associate Award program, two university faculty partnered with Ms. Keyaire Williams, a graduate preservice secondary mathematics student, to research the struggles future teachers might have in creating mathematics-themed children's books. This book project has evolved over the years (Wheeler et al., 2018; Wheeler & Mallam, 2020); but most recently Ms. Williams chose the topics of the Pythagorean theorem (TEKS 8.7C), circle graphs (TEKS 7.6G), and balancing a check register (TEKS 6.14C) as the book project themes. Groups of future teachers were each given one of these standards and tasked with creating an approximately eight-slide PowerPoint or Google Slide "book" with pictures and answer key for any problems presented. (See Wheeler et al. (2018) for more details of the specifics of the book project.) During her second year of working on the project, the university faculty gave Ms. Williams ownership of the project and allowed her to make changes as she saw fit. One change she made to the project for Fall 2020 was to add a base storyline to provide future teachers with a foundation that they could modify as they saw fit. In prior implementations of the project, some PSTs felt that it was overwhelming to create everything from scratch, so having some basic plots they could modify was seen as a potentially helpful addition.

When these courses were moved online due to COVID-19, Ms. Williams created a Zoom schedule to meet with the PSTs and go over any questions they might have concerning the project. She met twice in Zoom meetings with each group during the semester to make sure the future teachers felt comfortable about the project and were progressing in their work.

Figure 1 shows an excerpt of a slide one group created about the Pythagorean-theorem-themed story. The story is based on a dog traveling through a town and calculating the distance it went using the Pythagorean theorem.

Through the process of modifying an existing project, meeting with the PSTs, and grading the resulting book projects, Ms. Williams was able to see the impact her work had on the future teachers' understanding of the given mathematics standards, as well as her increased efficacy in being able to lead the project. She not only gained valuable knowledge of being able to create a lesson but saw how well the future teachers learned through her instruction and guidance.

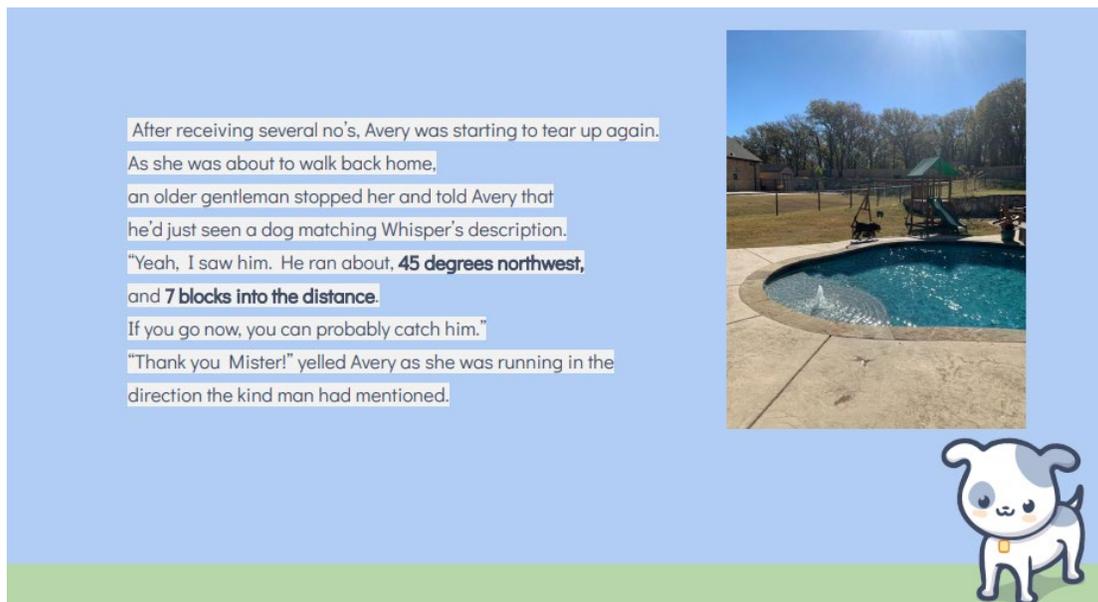


Figure 1. Sample book slide using the Pythagorean Theorem.

Science-Based Mathematics Lessons

Another type of mentoring program at our university, TWU's Experiential Student Scholars program, allows faculty to partner with students to conduct research or creative activities. Since 2014, one of the co-authors partnered with various PSTs to make a set of lessons based on a variety of themes, such as art-based and literature-based mathematics lessons. Most recently, she partnered with Mx. Julianna Baumgartner, a preservice middle school mathematics teacher, to create a set of four science-based mathematics lessons for middle to high school students. With each lesson, the PST created a lesson plan, activity, and reflection about the experience.

During Fall 2020, Mx. Baumgartner made a lesson about graphing on number lines (TEKS 8.2B) using the periodic table of elements (TEKS 8.5C). Figure 2 includes a sample question and answer from the lesson.

- b. Write each element's symbol and their melting point, and place them on a new number line. Round to the tenths place if needed.
- i. **Ne** - 248.6
 - ii. **Ar** - 189
 - iii. **Kr** - 157.4
 - iv. **Xe** - 111.8
 - v. **Rn** - 71.1

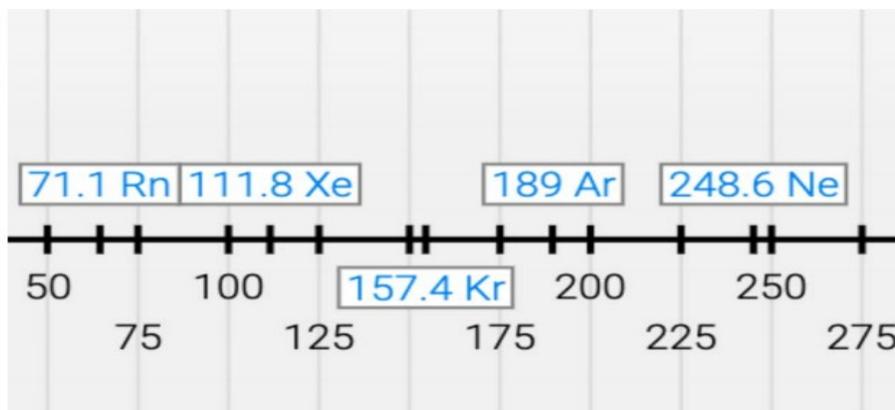


Figure 2. Sample question from a PST-created lesson on the number line.

The lesson was given to the same group of future teachers who completed the book project. Mx. Baumgartner made a Zoom introduction video about the lesson that helped the future teachers understand the nature of the activity. The lesson itself also included a YouTube video to help familiarize the future teachers with the periodic table.

Mx. Baumgartner was able to grade the work and see feedback from the class regarding their feelings about the lesson. In the future teachers' reflection comments, Mx. Baumgartner saw that some lengthy questions were misunderstood; this gave future teachers the opportunity to reflect on language demand in task instructions. Some future teachers felt the lesson was too complicated, while others felt it was explained well. These comments allowed Mx. Baumgartner to easily see how difficult meeting the needs of all students can be. During her own reflection about the project experience, Mx. Baumgartner agreed with the feedback and remarked that having future teachers watch a recorded video of her explanation of the lesson could lead to more confusion than having the opportunity to synchronously explain the activity to students.

Conclusion

Through these partnerships, we felt that Ms. Williams and Mx. Baumgartner gained valuable knowledge they would not have received from just creating lessons. They were grateful for the experiences of being able to actually test out their activities and see how well they were received in a classroom setting. Due to the positive responses from these research endeavors, we plan to test out in the next academic year the idea of having future teachers work in groups of 3-4 to create their own detailed lessons and activities that others in the class will complete and provide feedback on. Constructing such authentic tasks or even potential partnerships with public schools can provide valuable experiences for our PSTs to learn by teaching.

References

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Upcoming Conferences

June 21–23, 2021	TODOS Conference	Virtual
July 19–21, 2021	CAMT	Houston
September 18, 2021	AMTE-TX Fall Conference	Virtual
September 20–22, 2021	NCSM Annual Conference	Atlanta
September 22–25, 2021	NCTM Annual Conference	Atlanta
October 14–17	PME-NA Conference	Philadelphia
October 27–29, 2021	NCTM Research Conference	Phoenix

Upcoming Conferences

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MEMBERSHIP

The AMTE-TX official membership cycle is from July 1 through June 30. Typically, members join or renew memberships at CAMT or at the AMTE-TX Fall Conference. Encourage your colleagues to join!

You can easily join or renew your membership at <https://amte-tx.com/join-or-renew/>

For any membership questions, please contact our Membership Coordinator, Ryann Shelton at Ryann_Shelton@baylor.edu

Call for Submissions for *JMTET*

We welcome manuscripts on all topics relevant to mathematics teacher educators in Texas.

**Don't forget our special call for letters!
See page 3 of this issue.**

Submit articles and letters by **July 20, 2021**.

Visit the AMTE-TX website for submission guidelines.

**Questions?
Interested in becoming a reviewer?
Contact the *Journal* Co-Editors:
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