



Research Council on Mathematics Learning  
48<sup>th</sup> Annual Conference



*Reestablishing Connections for Mathematics Learning*

Virtual Conference  
February 26–27, 2021





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## SPECIAL THANKS

Program Materials: A special thank you to Michael Rugh and Julia Calabrese for their dedication and willingness to help construct both a traditional and virtual conference program this year.

Proposal Reviewers: A special thank you to all the proposal reviewers for reading and scoring so many proposals for this year's conference.

Macie Baucum  
Mary Margarete Capraro  
Ann Wheeler  
Winifred Mallam  
Ashley M. Williams  
Jamaal Young

Proceedings Reviewers: A special thank you to all of the proceedings reviewers for reading and scoring the immense number of proceedings for this conference.

Amy Adkins	Jacqueline Herman	Diana Perdue
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Lucas Foster	Ruby Lynch-Arroyo	Ben Wescoatt
Miranda Fox	Christie Martin	Cong-Cong Xing
Carlos Gomes	Leigh Martin	Seanyelle Yagi
Kris Green	Gabriel Todd Matney	Sean Yee
Matthew Gromlich	Julia McCavitt	Karen Zwanch
Casey Hawthorne	Katrina Nelson	



## Welcome from the 2021 Program and Conference Chairs

Welcome to the 48<sup>th</sup> annual RCML Conference. We are honored to host this year's conference virtually, and hope you find this year's conference to be stimulating, rewarding, and energizing. We would like to thank all the speakers, attendees, reviewers, committee members, and contributors to the conference. We celebrate the success of the conference with you, as we know it is due to the dedication of your efforts and support. We hope you will have a *fabulous* time throughout the conference. Please let us know if we can assist you in any way. Enjoy the conference!



Jamaal Young  
Texas A&M University  
2021 Program Chair



Ann Wheeler  
Texas Woman's University  
2021 Conference Co-Chair



Winifred Mallam  
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## RCML Officers

2019–2021 *President*, S. Megan Che, Clemson University, sche@clemson.edu

2020–2021 *President Elect*, Travis Olson, University of Nevada at Las Vegas,  
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2018–2022 *Vice President for Conferences*, Sarah Smitherman Pratt, Baylor University,  
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2016–2021 *Vice President for Publications*, Gabriel Matney, Bowling Green State University,  
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## Conference Committee Members

2018-present, Sarah Pratt (chair), Baylor University, Sarah\_Pratt@baylor.edu

2018-2021, Travis Mukina, Chaminade University of Honolulu, travis.mukina@chaminade.edu

2018-2021, Jamaal Young, Texas A&M University, Jamaal.young@tamu.edu

2019-2022, Kate Raymond, The University of Oklahoma, kate.m.raymond@ou.edu

2019-2022, Nesrine Sahin, University of Central Arkansas, nesrins@uca.edu

2020-2023, Natalia Bailey, University of Central Missouri, nbailey@ucmo.edu

2020-2023, Tony Thompson, East Carolina University, thompsonan@ecu.edu



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**CONFERENCE EVENTS AT A GLANCE**  
(TIMES PRESENTED IN EASTERN STANDARD TIME)

**Friday, February 26, 2021**

- 10:00 am – 10:25 am EST Welcome & Opening Day 1
- 10:30 am – 12:50 pm EST Breakout Sessions
- 1:00 pm – 1:45 pm EST Getting Involved with *Investigations in Mathematics Learning*, RCML's Research Journal
- 2:00 pm – 4:50 pm EST Breakout Sessions
- 5:00 pm – 5:50 pm EST Keynote: Dr. Nasrin Mirsaleh-Kohan
- 5:50 pm – 6:00 pm EST Concluding Day 1

**Saturday, February 27, 2021**

- 10:00 am – 10:05 am EST Opening Day 2
- 10:05 am – 10:55 am EST Keynote: Dr. Robert Berry
- 11:00 am – 12:50 pm EST Breakout Sessions
- 1:00 pm – 2:00 pm EST RCML Business Meeting & Closing the Conference

## WILSON MEMORIAL LECTURE: NASRIN MIRSALEH-KOHAN

Thursday, 5:00 pm EST

INTRODUCTION BY WILLIAM SPEER

**Title:** *Communicating Your Research to the Public: A Trip to the Mall*

**Description:** One of the challenges researchers face today is sharing their science with the general public. Science researchers need to be able to talk about their work and findings in terms that the general public can understand. It is important for public stakeholders to have high regard and confidence in scientific research. When the public embraces what happens in research labs, they will support federally funded research. At Texas Woman's University (TWU), we have held an event, "Pioneer Research at the Mall," in Denton, Texas to communicate what we do at TWU with the larger community. Through this event, we aimed to improve dialogue between young scientists and the public by having students prepare a general poster, a non-technical public version of their research and present it to the Denton community. One result of this event was to show the citizens of our community that they are supporting many great students, mostly women and underrepresented minorities. The students had the opportunity to engage the public as responsible citizens. In this presentation, I will discuss details of this event, the benefits, and responses to our survey questions.



**Biography:** Dr. Nasrin Mirsaleh-Kohan is Associate Professor at Texas Woman's University. She received her Ph.D. in Physics from the University of Tennessee (UT), followed by a postdoctoral fellowship at the University of Sherbrooke in Canada. Then she returned to Tennessee and was a postdoctoral research associate at UT. She teaches algebra-based physics and calculus-based physics. Her research interests include surface-enhanced Raman scattering, interaction of anticancer drugs with DNA, nanomaterials, negative ions, radiation damage to DNA and teaching pedagogy and student learning, particularly in science classes such as Physics.

Dr. Kohan is a strong believer in using hands-on experiences to educate students. Dr. Kohan is the faculty advisor for the award-winning Chemistry Club, TWU's student chapter of the American Chemical Society. She is also the lead faculty organizer for the annual poster show at the Golden Triangle Mall titled "Pioneer Research at the Mall" held every fall. Dr. Kohan is a TWU Experiential Learning Fellow and a SENCER (Science Education for New Civic engagements and Responsibilities) Leadership Fellow. Since February 2017, Dr. Kohan is Co-Director of SENCER Center for Innovation—Southwest at TWU, helping to convey the mission of SENCER in the Southwest region.



## FOUNDERS LECTURE: ROBERT Q. BERRY, III

Saturday, 10:00 am EST

INTRODUCTION BY JAMAAL YOUNG



**Title:** Examining mathematics education reforms' impact on historically excluded learners.

**Description:** This keynote uses a hybrid policy analysis-critical race theory (CRT) lens primarily informed by the work of Derrick Bell to make the case that policies and reforms in mathematics education were not designed to address the needs of historically excluded learners; instead, these policies and reforms are often designed and enacted to protect the economic, technological, and social interests of those in power. The talk offers contrasting narratives between policy intentions and policy enactment, highlighting how the language of mathematics education policies enacted by educational professionals marginalized learners within their cultures, families, and communities.

**Biography:** Robert Q. Berry III, Ph. D. is a professor of mathematics education at the University of Virginia. He is the Samuel Braley Gray Professor of Mathematics Education and the Associate Dean of Diversity, Equity, and Inclusion in the School of Education and Human Development. Previously, he was an assistant professor at Old Dominion University and was an assistant director at the University of North Carolina at Chapel Hill. Before becoming a university professor, Berry served for 8 years as a K-12 mathematics educator. He was also the president of NCTM from 2018-2020.

Dr. Berry has over 100 publications on a variety of topics. His key focus is equity issues in mathematics education, including understanding Black children's mathematics experiences and unpacking equitable mathematics teaching and learning. Besides authoring many other books, textbooks, and journal articles, he also served on the writing team for NCTM's *Principles to Actions: Ensuring Mathematical Success for All* and contributing to all three books in the *Catalyzing Change* series. He is co-edited Corwin's best-selling book, *High School Mathematics Lessons to Explore, Understand, and Respond to Social Injustice*.

On top of his many accomplishments, Dr. Berry has won several awards and honors. This includes being named VCTM's Mathematics Educator of the Year (2011), as well as earning UVA's All-University Teach Award, *Mathematics Teaching in the Middle School's* Linking Research to Practice Publication Awards (2013-2014), and UNC's Excellence in Teaching Alumni Award (2016) and ODU's Darden Fellows Distinguished Alumni Award (2019). He served on many professional organizations, such as the Association of Mathematics Teacher Education and the Council for the Accreditation of Educator Preparation, as well as on the editorial boards for journals like *Investigation in Mathematics Learning* (2021 – 2023) and *Mathematics Teacher Educator* (2021 – 2024).

Robert and his wife Michelle, a high school mathematics teacher, are parents to three young men. He describes himself as an introverted scholar who has worked to become more outgoing and connected.

## Overview of Sessions

All times are in EST	Friday Morning				
	<a href="http://tx.ag/RCML1">Link: tx.ag/RCML1</a>	<a href="http://tx.ag/RCML2">Link: tx.ag/RCML2</a>	<a href="http://tx.ag/RCML3">Link: tx.ag/RCML3</a>	<a href="http://tx.ag/RCML4">Link: tx.ag/RCML4</a>	<a href="http://tx.ag/RCML5">Link: tx.ag/RCML5</a>
10:00 AM-10:25 AM	Welcome & Opening Day 1 (Link: <a href="http://tx.ag/RCML1">tx.ag/RCML1</a> )				
10:30 AM-10:55 AM	<p style="text-align: center;"><b>#101:</b> Modeling Equitable Practices: Math Teacher Educators' Reflection &amp; Practice</p> <p style="text-align: center;">Colleen Eddy, Karisma Morton, Dittika Gupta, Crystal Kalinec-Craig, Mark Montgomery Fardowsa Mahdi Keely Hulme</p> <p><i>Keywords:</i> Elementary Grades Mathematics Content, Pedagogy, Access &amp; Equity</p>	<p style="text-align: center;"><b>#102:</b> Comparing Efficacies of Modes of Teaching Project-Based Learning Courses</p> <p style="text-align: center;">Robert J Quinn, Glenn Waddell</p> <p><i>Keywords:</i> Mathematical Knowledge for Teaching, Pre-Service Teacher Education, Pedagogy</p>	<p style="text-align: center;"><b>#103:</b> Modeling and Elementary Pre-Service Teachers Beliefs About Mathematics</p> <p style="text-align: center;">Ryan Hoffpauir</p> <p><i>Keywords:</i> College Mathematics Content, Pre-Service Teacher Education, Affect (Beliefs, Attitudes, Efficacy)</p>	<p style="text-align: center;"><b>#104:</b> What We Learned, What We Are Learning</p> <p style="text-align: center;">Ryan Fox, Huntir Bass</p> <p><i>Keywords:</i> College Mathematics Content, Mathematical Knowledge for Teaching, Social Contexts for Teaching &amp; Learning</p>	<p style="text-align: center;"><b>#105:</b> Mathematics and Science Teaching for New Alternative Certification Teachers</p> <p style="text-align: center;">Brian Evans</p> <p><i>Keywords:</i> Pre-Service Teacher Education, In-Service Teacher Education, Pedagogy</p>
11:00 AM-11:25 AM		<p style="text-align: center;"><b>#202:</b> PST Noticing: Reflecting after Watching their own Videos</p> <p style="text-align: center;">Sandi Cooper, Brandy Crowley, Michael Warren, Kurt Salisbury, Melissa Eubank</p> <p><i>Keywords:</i> Pre-Service Teacher Education</p>	<p style="text-align: center;"><b>#203:</b> Beliefs: A Case Study on Formation, Change, and Influence</p> <p style="text-align: center;">Tonya Garrett</p> <p><i>Keywords:</i> In-Service Teacher Education, Affect (Beliefs, Attitudes, Efficacy)</p>	<p style="text-align: center;"><b>#204:</b> Mathematics Graduate Student Instructors (MGSIs) Goals for Student Learning</p> <p style="text-align: center;">Jen Monastra, Sean Yee</p> <p><i>Keywords:</i> College Mathematics Content, In-Service Teacher Education, Pedagogy</p>	<p style="text-align: center;"><b>#205:</b> Preservice Teachers' Perceptions of Lesson Study: Thai versus U.S. Context</p> <p style="text-align: center;">Miranda Fox, Gabriel Matney</p> <p><i>Keywords:</i> Pre-Service Teacher Education</p>
11:30 AM-11:55 AM	<p style="text-align: center;"><b>#301:</b> Critical Conversations for Envisioning Research in Mathematics</p> <p style="text-align: center;">Trena Wilkerson</p> <p><i>Keywords:</i> K-12 Education, Policy &amp; Reform, Access &amp; Equity</p>				<p style="text-align: center;"><b>#305:</b> Experiencing Lesson Study Programmatically</p> <p style="text-align: center;">Gabriel Matney, Miranda Fox</p> <p><i>Keywords:</i> Pre-Service Teacher Education</p>
12:00 PM-12:25 PM		<p style="text-align: center;"><b>#402:</b> Analyzing Preservice Teachers' Math Lessons Based on Children's Literature</p> <p style="text-align: center;">Winifred Mallam, Ann Wheeler</p> <p><i>Keywords:</i> Secondary Grades Mathematics Content, Mathematical Knowledge for Teaching, Pre-Service Teacher Education, Pedagogy, Assessment</p>	<p style="text-align: center;"><b>#403:</b> Predicting Success in a Mathematics Education Program</p> <p style="text-align: center;">Daniel Brahier Jonathan Bostic</p> <p><i>Keywords:</i> Pre-Service Teacher Education, Communities of Practice</p>	<p style="text-align: center;"><b>#404:</b> Connecting Content and Effective Teaching Practices Using Technology</p> <p style="text-align: center;">Katherine Smith, Eileen Faulkenberry, Beth Riggs, Michael Warren</p> <p><i>Keywords:</i> College Mathematics Content, Pre-Service Teacher Education, Pedagogy, Technology</p>	<p style="text-align: center;"><b>#405:</b> Implementing the EdTPA: The Experiences of One University</p> <p style="text-align: center;">Tony Thompson</p> <p><i>Keywords:</i> Pre-Service Teacher Education, Policy &amp; Reform</p>
12:30 PM-12:55 PM	<p style="text-align: center;"><b>#501:</b> Mathematics Tracking and De-Tracking: A Systematic Review of the Literature</p> <p style="text-align: center;">Alana Tholen, Jamaal Young</p> <p><i>Keywords:</i> Access &amp; Equity</p>				
1:00 PM-1:45 PM	Getting Involved with <i>Investigations in Mathematics Learning</i> , RCML's Research Journal (Link: <a href="http://tx.ag/RCML1">tx.ag/RCML1</a> )				



All times are in EST	Friday Afternoon				
	<a href="https://www.tx.ag/RCML1">Link: tx.ag/RCML1</a>	<a href="https://www.tx.ag/RCML2">Link: tx.ag/RCML2</a>	<a href="https://www.tx.ag/RCML3">Link: tx.ag/RCML3</a>	<a href="https://www.tx.ag/RCML4">Link: tx.ag/RCML4</a>	<a href="https://www.tx.ag/RCML5">Link: tx.ag/RCML5</a>
2:00 PM-2:25 PM	<p><b>#601:</b> <b>History of Mathematics in The Classroom: A Focus on Cultures</b></p> <p>Brian Evans</p> <p><i>Keywords:</i> Elementary Grades Mathematics Content, Secondary Grades Mathematics Content, College Mathematics Content, Pedagogy, Access &amp; Equity</p>	<p><b>#602:</b> <b>Exploring Perspectives of Preservice Teachers' Enactment of Teaching Moves</b></p> <p>Montana Smithey</p> <p><i>Keywords:</i> Mathematical Knowledge for Teaching, Pre-Service Teacher Education, Pedagogy</p>	<p><b>#603:</b> <b>Mathematics Experiences and Beliefs of Preservice Elementary Teachers</b></p> <p>John Weaver, Juliana Utley</p> <p><i>Keywords:</i> K-12 Education, Pre-Service Teacher Education, Affect (Beliefs, Attitudes, Efficacy)</p>	<p><b>#604:</b> <b>Student Attitudes in a Real-World Inspired Second Statistics Course</b></p> <p>Jacqueline Herman</p> <p><i>Keywords:</i> College Mathematics Content, Pedagogy, Affect (Beliefs, Attitudes, Efficacy)</p>	<p><b>#605:</b> <b>Preparing Teachers to Choose Instructional Materials: Examining Standards</b></p> <p>Kate Raymond</p> <p><i>Keywords:</i> Pre-Service Teacher Education</p>
2:30 PM-2:55 PM				<p><b>#704:</b> <b>Performance of Students Enrolled in Mathematics Courses during COVID-19</b></p> <p>Kathy Cousins-Cooper, Sayed Mostafa, Barbara Tankersley, Shea Burns, Guoqing Tang</p> <p><i>Keywords:</i> College Mathematics Content, Research Methodologies in Mathematics Education, Technology</p>	<p><b>#705:</b> <b>Pre-service Teachers' Beliefs about Mathematics and Mathematics Teaching</b></p> <p>Hyunkyung Kwon, Danielle Bevan, Robert M. Capraro, Mary Margaret Capraro</p> <p><i>Keywords:</i> Elementary Grades Mathematics Content, Pre-Service Teacher Education, Pedagogy, Affect (Beliefs, Attitudes, Efficacy)</p>
3:00 PM-3:25 PM	<p><b>#801:</b> <b>Black English and its Role in Learning Mathematics While Black</b></p> <p>Nickolaus Ortiz</p> <p><i>Keywords:</i> Secondary Grades Mathematics Content, Pedagogy, Access &amp; Equity</p>	<p><b>#802:</b> <b>Examining the Use of a Book Project for Mathematical Learning</b></p> <p>Ann Wheeler, Winifred Mallam, Keyaire Williams</p> <p><i>Keywords:</i> Pre-Service Teacher Education, Curriculum</p>	<p><b>#803:</b> <b>Algebra Teacher Self-Efficacy Instrument Validation for Preservice Teachers</b></p> <p>Dittika Gupta, Trena Wilkerson, Colleen Eddy, Elizabeth Ward, Melissa Donham</p> <p><i>Keywords:</i> Pre-Service Teacher Education, Research Methodologies in Mathematics Education, Affect (Beliefs, Attitudes, Efficacy)</p>	<p><b>#804:</b> <b>Examining Characteristics of Students in Quantitative Reasoning &amp; Pre-Cal I</b></p> <p>Latoya Johnson, Juliana Utley</p> <p><i>Keywords:</i> College Mathematics Content, Affect (Beliefs, Attitudes, Efficacy)</p>	<p><b>#805:</b> <b>Understanding Probability Literacy of High School Students</b></p> <p>Fred Coon</p> <p><i>Keywords:</i> K-12 Education, Pre-Service Teacher Education, In-Service Teacher Education</p>
3:30 PM-3:55 PM	<p><b>#901:</b> <b>Reflecting on The Past to Strengthen Instruction for All Students</b></p> <p>Tina Mitchell, Taajah Witherspoon</p> <p><i>Keywords:</i> Pre-Service Teacher Education, Access &amp; Equity, Affect (Beliefs, Attitudes, Efficacy)</p>	<p><b>#902:</b> <b>Implementing Lesson Study in Mathematics: The Impact on Preservice Teachers</b></p> <p>Rachelle Meyer Rogers, Ryann Shelton, Trena Wilkerson</p> <p><i>Keywords:</i> Pre-Service Teacher Education, Professional Development, Pedagogy</p>	<p><b>#903:</b> <b>Exploring PSTs' Spatial Ability, Self-efficacy and Achievement</b></p> <p>Tonya Rhodes, Juliana Utley, Jennifer Cribbs</p> <p><i>Keywords:</i> Pre-Service Teacher Education, Affect (Beliefs, Attitudes, Efficacy)</p>	<p><b>#904:</b> <b>Computer Screens and Other Math Things</b></p> <p>Jessica Showell, Nickolaus Ortiz</p> <p><i>Keywords:</i> K-12 Education, Pedagogy, Technology</p>	<p><b>#905:</b> <b>Preservice Dispositions Towards Using Integrated STEM to Teach Mathematics</b></p> <p>Cathrine Maiorca, Babette Benken</p> <p><i>Keywords:</i> Pre-Service Teacher Education, Pedagogy, STEAM</p>

4:00 PM-4:25 PM		<p><b>#1002: Developing PSTs' Understanding of the Math Practices</b></p> <p>Andria Disney, Heidi Eisenreich</p> <p><i>Keywords:</i> Pre-Service Teacher Education, Pedagogy</p>	<p><b>#1003: Diagrams on Standardized Tests: Students Multiple Interpretations</b></p> <p>Katie Taylor, Olivia McGuirt, Casey Hawthorne</p> <p><i>Keywords:</i> Elementary Grades Mathematics Content, Mathematical Knowledge for Teaching, Assessment</p>	<p><b>#1004: Reimagining Mathematics Teaching Online: Meeting the NCTM Process Standards</b></p> <p>Patrick Wachira</p> <p><i>Keywords:</i> Pre-Service Teacher Education, Pedagogy, Assessment, Technology</p>	<p><b>#1005: Preservice Teachers' Experiences in Maker-Centered Learning Activities</b></p> <p>Li Sun</p> <p><i>Keywords:</i> Elementary Grades Mathematics Content, Pre-Service Teacher Education, STEAM</p>
4:30 PM-4:55 PM	<p><b>#1101: Exploring Effects of Whiteness in Math Instruction with Urban HS Students</b></p> <p>Brian Dossey, Sarah Pratt</p> <p><i>Keywords:</i> Pedagogy, Access &amp; Equity, Social Contexts for Teaching &amp; Learning</p>	<p><b>#1102: Making Mathematical Connections by Maintaining Common Ground</b></p> <p>Jonathan Foster</p> <p><i>Keywords:</i> Pedagogy, Social Contexts for Teaching &amp; Learning</p>		<p><b>#1104: Variant: Game-based learning for calculus</b></p> <p>Michael Rugh, André Thomas</p> <p><i>Keywords:</i> Secondary Grades Mathematics Content, College Mathematics Content, Other</p>	<p><b>#1105: Informal STEM Learning: Expanding Students' Perceptions of Mathematics</b></p> <p>Cathrine Maiorca, Thomas Roberts, Christa Jackson, Margaret Mohr-Schroeder</p> <p><i>Keywords:</i> Access &amp; Equity, STEAM, Informal Education</p>
5:00 PM-5:55 PM	<p>Keynote Speaker: Dr. Nasrin Mirsaleh-Kohan (Link: <a href="https://tx.ag/RCML1">tx.ag/RCML1</a>)</p>				

Saturday Morning					
	Link: <a href="https://tx.ag/RCML1">tx.ag/RCML1</a>	Link: <a href="https://tx.ag/RCML2">tx.ag/RCML2</a>	Link: <a href="https://tx.ag/RCML3">tx.ag/RCML3</a>	Link: <a href="https://tx.ag/RCML4">tx.ag/RCML4</a>	Link: <a href="https://tx.ag/RCML5">tx.ag/RCML5</a>
10:00 AM-10:55 AM	<p>Keynote Speaker: Dr. Robert Berry (Link: <a href="https://tx.ag/RCML1">tx.ag/RCML1</a>)</p>				
11:00 AM-11:25 AM	<p><b>#1201: Facilitating Emergent Multilingual Students' Problem Solving and Discourse</b></p> <p>Jill Neumayer DePiper, Johannah Nikula</p>	<p><b>#1202: Proportional Reasoning and Coordinating Units of Measure on a Ruler</b></p> <p>Jianna Davenport, Karen Zwanch</p>	<p><b>#1203: Students' Sense Making in Multi-Step Word Problems</b></p> <p>Gabriel Matney, Jonathan Bostic, Miranda Fox</p> <p><i>Keywords:</i> Elementary Grades Mathematics Content</p>	<p><b>#1204: Supporting Connections to Teaching in an Undergraduate Calculus Course</b></p> <p>Kyle Turner, James Alvarez</p> <p><i>Keywords:</i> College Mathematics Content, Mathematical Knowledge for Teaching, Pre-Service Teacher Education</p>	
11:30 AM-11:55 AM	<p><i>Keywords:</i> Secondary Grades Mathematics Content, Curriculum, Access &amp; Equity</p>	<p><i>Keywords:</i> measurement, proportional reasoning</p>	<p><b>#1303: First in Math Online Program Assesses Computational Thinking</b></p> <p>Lynn Columba</p> <p><i>Keywords:</i> Elementary Grades Mathematics Content, K-12 Education, Professional Development, Curriculum, Pedagogy, Technology</p>	<p><b>#1304: Mentoring Research Question Development in Applied Mathematics</b></p> <p>Carlos Castillo-Garsow</p> <p><i>Keywords:</i> College Mathematics Content, Pedagogy, STEAM, Social Contexts for Teaching &amp; Learning</p>	



12:00 PM-12:25 PM		<p><b>#1402:</b> Supporting Students' Anticipation of Scale Factor</p> <p>Tinh Dang, Karen Zwanch</p>	<p><b>#1403:</b> The Impact of Problem-Solving Discussions on Heuristic Use</p> <p>Sam Rhodes</p> <p><i>Keywords:</i> Elementary Grades Mathematics Content, Professional Development, Other</p>	<p><b>#1404:</b> Critical Self-Reflexivity, Mathematics Education, and CS Teachers</p> <p>Megan Che, Evan Baker, Rhoda Latimer</p> <p><i>Keywords:</i> In-Service Teacher Education, Professional Development, Social Contexts for Teaching &amp; Learning</p>	<p><b>#1405:</b> Mathematics as Human Enterprise: De-Colonizing the Mathematics Curriculum</p> <p>Stacy Reeder, Kate Raymond</p>
12:30 PM-12:55 PM		<p><i>Keywords:</i> Other</p>	<p><b>#1503:</b> Our Number Sense Journey: The Decomposition Detour</p> <p>Kay Wohlhuter, Mary Swarthout</p> <p><i>Keywords:</i> Mathematical Knowledge for Teaching, Pre-Service Teacher Education, Professional Development</p>	<p><b>#1504:</b> Preparing K-8 Teachers to Pose Word Problems: Embracing the Opportunity to Promote Equity and Multiculturalism</p> <p>Rachael Welder, Ashley Williams</p> <p><i>Keywords:</i> Problem Posing, Promoting Equity and Multiculturalism in Mathematics, and Teacher Education</p>	<p><i>Keywords:</i> In-Service Teacher Education, Curriculum, Social Contexts for Teaching &amp; Learning</p>
12:00 PM-1:00 PM	<p>RCML Business Meeting &amp; Closing the Conference (Link: <a href="http://tx.ag/RCML1">tx.ag/RCML1</a>)</p>				

## SESSION DETAILS

### FRIDAY MORNING SESSIONS

*Please join us for the Welcome and Opening Session*  
**Friday, February 26, 10:00 AM - 10:25 AM EST**  
 (Link: [tx.ag/RCML1](https://tx.ag/RCML1))

Time: 10:30 AM - 10:55 AM	Session #101	Link: <a href="https://tx.ag/RCML1">tx.ag/RCML1</a>
<b>Modeling Equitable Practices: Math Teacher Educators' Reflections &amp; Practices</b>		
Colleen Eddy Karisma Morton Dittika Gupta Crystal Kalinec-Craig Mark Montgomery		University of North Texas University of North Texas
<p>Abstract: A team of elementary mathematics teacher educators collaborate using Lesson Study as the platform for reflection, and modeling authenticity for equitable practices in mathematics.</p> <p>Key Themes: Elementary Grades Mathematics Content, Pedagogy, Access &amp; Equity</p>		

Time: 10:30 AM - 10:55 AM	Session #102	Link: <a href="https://tx.ag/RCML2">tx.ag/RCML2</a>
<b>Comparing Efficacies of Modes of Teaching Project-Based Learning Courses</b>		
Robert J Quinn Glenn Waddell		University of Nevada, Reno University of Nevada, Reno
<p>Abstract: This study compares the impact of a PBL course taught face-to-face in 2019 with that of a PBL course taught remotely in 2020</p> <p>Key Themes: Mathematical Knowledge for Teaching, Pre-Service Teacher Education, Pedagogy</p>		

Time: 10:30 AM - 10:55 AM	Session #103	Link: <a href="https://tx.ag/RCML3">tx.ag/RCML3</a>
<b>Modeling and Elementary Pre-Service Teachers Beliefs about Mathematics</b>		
Ryan Hoffpauir		Dalton State College
<p>Abstract: Early stages of research focused on understanding a possible relationship between pre-service elementary teachers' beliefs about mathematics and the use of algebraic models in an algebra curriculum.</p> <p>Key Themes: College Mathematics Content, Pre-Service Teacher Education, Affect (Beliefs, Attitudes, Efficacy)</p>		

## FRIDAY

<b>Time: 10:30 AM - 10:55 AM</b>	<b>Session #104</b>	<b>Link: <a href="http://tx.ag/RCML4">tx.ag/RCML4</a></b>
<b>What We Learned, What We Are Learning</b>		
Ryan Fox Huntir Bass		Belmont University University of Central Florida
<p>Abstract: We share two views on teaching a Quantitative Literacy course: one learning to teach math and one wanting deep connections to present enjoyable math.</p> <p>Key Themes: College Mathematics Content, Mathematical Knowledge for Teaching, Social Contexts for Teaching &amp; Learning</p>		

<b>Time: 10:30 AM - 10:55 AM</b>	<b>Session #105</b>	<b>Link: <a href="http://tx.ag/RCML5">tx.ag/RCML5</a></b>
<b>Mathematics and Science Teaching for New Alternative Certification Teachers</b>		
Brian Evans		Pace University
<p>Abstract: We will discuss support needed for new alternative certification teachers in math/science as increasingly important for students in a global society.</p> <p>Key Themes: Pre-Service Teacher Education, In-Service Teacher Education, Pedagogy</p>		

<b>Time: 11:00 AM - 11:55 AM</b>	<b>Session #202</b>	<b>Link: <a href="http://tx.ag/RCML2">tx.ag/RCML2</a></b>
<b>PST Noticing: Reflecting after Watching their Own Videos</b>		
Sandi Cooper Brandy Crowley Michael Warren Kurt Salisbury Melissa Eubank		Baylor University Baylor University
<p>Abstract: This session reports on preservice teacher noticing during a summer mathematics academy in which PSTs watched their own videos before reflecting.</p> <p>Key Themes: Pre-Service Teacher Education</p>		

<b>Time: 11:00 AM - 11:55 AM</b>	<b>Session #203</b>	<b>Link: <a href="http://tx.ag/RCML3">tx.ag/RCML3</a></b>
<b>Beliefs: A Case Study on Formation, Change, and Influence</b>		
Tonya Garrett		Northeastern State University
<p>Abstract: This study investigated mathematical beliefs held by in-service second grade teachers, how those beliefs were formed, and how the beliefs influenced their mathematics instruction.</p> <p>Key Themes: In-Service Teacher Education, Affect (Beliefs, Attitudes, Efficacy)</p>		

## FRIDAY

<b>Time: 11:00 AM - 11:55 AM</b>	<b>Session #204</b>	<b>Link: <a href="http://tx.ag/RCML4">tx.ag/RCML4</a></b>
<b>Mathematics Graduate Student Instructors (MGSI) Goals for Student Learning</b>		
Jen Monastra Sean Yee		University of South Carolina University of South Carolina
<p>Abstract: A qualitative multiple case study examines how Mathematics Graduate Students think about student learning by focusing on their goals and perspectives.</p> <p>Key Themes: College Mathematics Content, In-Service Teacher Education, Pedagogy</p>		

<b>Time: 11:00 AM - 11:55 AM</b>	<b>Session #205</b>	<b>Link: <a href="http://tx.ag/RCML5">tx.ag/RCML5</a></b>
<b>Preservice Teachers' Perceptions of Lesson Study: Thai Versus U.S. Context</b>		
Miranda Fox Gabriel Matney		Bowling Green State University Bowling Green State University
<p>Abstract: This presentation will share a comparison of preservice teachers' experiences and perceptions of lesson study conducted during their initial teacher education programs.</p> <p>Key Themes: Pre-Service Teacher Education</p>		

<b>Time: 11:30 AM - 12:25 PM</b>	<b>Session #301</b>	<b>Link: <a href="http://tx.ag/RCML1">tx.ag/RCML1</a></b>
<b>Critical Conversations for Envisioning Research in Mathematics</b>		
Trena Wilkerson	Baylor University & National Council of Teachers of Mathematics	
<p>Abstract: Let's discuss current and future research directions for mathematics education examining recommendations made in NCTM's Catalyzing Change for PK-12</p> <p>Key Themes: K-12 Education, Policy &amp; Reform, Access &amp; Equity</p>		

<b>Time: 11:30 AM - 12:25 PM</b>	<b>Session #305</b>	<b>Link: <a href="http://tx.ag/RCML5">tx.ag/RCML5</a></b>
<b>Experiencing Lesson Study Programmatically</b>		
Gabriel Matney Miranda Fox		Bowling Green State University Bowling Green State University
<p>Abstract: This study of preservice teachers investigates their experiences with a program requirement to learn about and engage in multiple iterations of open approach lesson study.</p> <p>Key Themes: Pre-Service Teacher Education</p>		

## FRIDAY

<b>Time: 12:00 PM - 12:55 PM</b>	<b>Session #402</b>	<b>Link: <a href="https://tx.ag/RCML2">tx.ag/RCML2</a></b>
<b>Analyzing Preservice Teachers' Math Lessons Based on Children's Literature</b>		
Winifred Mallam Ann Wheeler		Texas Woman's University Texas Woman's University
Abstract: Preservice teachers created math lessons for grades 6-8 based on children's literature. We will share results of our critique using Stein et al's Guide.		
Key Themes: Secondary Grades Mathematics Content, Mathematical Knowledge for Teaching, Pre-Service Teacher Education, Pedagogy, Assessment		

<b>Time: 12:00 PM - 12:55 PM</b>	<b>Session #403</b>	<b>Link: <a href="https://tx.ag/RCML3">tx.ag/RCML3</a></b>
<b>Predicting Success in a Mathematics Education Program</b>		
Daniel Brahier		Bowling Green State University
Abstract: Examine the results of a study on predictor variables for success in an undergraduate mathematics education program, based on eight years of graduate data.		
Key Themes: Pre-Service Teacher Education, Communities of Practice		

<b>Time: 12:00 PM - 12:55 PM</b>	<b>Session #404</b>	<b>Link: <a href="https://tx.ag/RCML4">tx.ag/RCML4</a></b>
<b>Connecting Content and Effective Teaching Practices Using Technology</b>		
Katherine Smith Eileen Faulkenberry Beth Riggs Michael Warren		Tarleton State University Tarleton State University
Abstract: With the onset of COVID-19, university faculty shifted teaching practices. Four mathematics education faculty share their story of moving from in-person to remote/Hyflex teaching.		
Key Themes: College Mathematics Content, Pre-Service Teacher Education, Pedagogy, Technology		

<b>Time: 12:00 PM - 12:55 PM</b>	<b>Session #405</b>	<b>Link: <a href="https://tx.ag/RCML5">tx.ag/RCML5</a></b>
<b>Implementing the EdTPA: The Experiences of One University</b>		
Tony Thompson		East Carolina University
Abstract: This presentation shares research into faculty and pre-service mathematics teachers' perceptions of and experiences with the EdTPA at East Carolina University		
Key Themes: Pre-Service Teacher Education, Policy & Reform		

## FRIDAY

<b>Time: 12:30 PM - 12:55 PM</b>	<b>Session #501</b>	<b>Link: <a href="https://tx.ag/RCML1">tx.ag/RCML1</a></b>
<b>Mathematics Tracking and De-Tracking: A Systematic Review of the Literature</b>		
Alana Tholen Jamaal Young		University of Iowa Texas A&M University
Abstract: This systematic review examines the mathematics education literature concerning tracking at the nexus of access to early algebra and subsequent access to advanced secondary mathematics.		
Key Themes: Access & Equity		

*Please join us for the RCML Publication Meeting*  
**Friday, February 26, 1:00 PM - 1:55 PM EST**  
(Link: [tx.ag/RCML1](https://tx.ag/RCML1))

## FRIDAY AFTERNOON SESSIONS

<b>Time: 2:00 PM - 2:55 PM</b>	<b>Session #601</b>	<b>Link: <a href="http://tx.ag/RCML1">tx.ag/RCML1</a></b>
<b>History of Mathematics in the Classroom: A Focus on Cultures</b>		
Brian Evans		Pace University
Abstract: A brief overview in math history through various cultural contribution is given, and generates ideas for using math history to motivate students.		
Key Themes: Elementary Grades Mathematics Content, Secondary Grades Mathematics Content, College Mathematics Content, Pedagogy, Access & Equity		

<b>Time: 2:00 PM - 2:55 PM</b>	<b>Session #602</b>	<b>Link: <a href="http://tx.ag/RCML2">tx.ag/RCML2</a></b>
<b>Exploring Perspectives of Preservice Teachers' Enactment of Teaching Moves</b>		
Montana Smithey		Georgia Southern University
Abstract: Presentation highlights relationships between teaching moves used in problem-solving interviews with children and preservice teachers' rationales.		
Key Themes: Mathematical Knowledge for Teaching, Pre-Service Teacher Education, Pedagogy		

<b>Time: 2:00 PM - 2:55 PM</b>	<b>Session #603</b>	<b>Link: <a href="http://tx.ag/RCML3">tx.ag/RCML3</a></b>
<b>Mathematics Experiences and Beliefs of Preservice Elementary Teachers</b>		
John Weaver		Oklahoma State University
Juliana Utley		Oklahoma State University
Abstract: The purpose of this research is to describe significant educational experiences that preservice elementary teachers (PETs) say had an impact on their mathematics learning.		
Key Themes: K-12 Education, Pre-Service Teacher Education, Affect (Beliefs, Attitudes, Efficacy)		

<b>Time: 2:00 PM - 2:25 PM</b>	<b>Session #604</b>	<b>Link: <a href="http://tx.ag/RCML4">tx.ag/RCML4</a></b>
<b>Student Attitudes in a Real-World Inspired Second Statistics Course</b>		
Jacqueline Herman		Northern Kentucky University
Abstract: A second statistics course was designed around applications to real-world scenarios. Changes in students' attitudes are investigated.		
Key Themes: College Mathematics Content, Pedagogy, Affect (Beliefs, Attitudes, Efficacy)		

<b>Time 2:00 PM - 2:25 PM</b>	<b>Session #605</b>	<b>Link: <a href="http://tx.ag/RCML5">tx.ag/RCML5</a></b>
<b>Preparing Teachers to Choose Instructional Materials: Examining Standards</b>		
Kate Raymond		University of Oklahoma
Abstract: Math teachers are increasingly using the internet to find high quality instructional materials. How are teacher preparation programs preparing math teachers for this work?		
Key Themes: Pre-Service Teacher Education		

## FRIDAY

Time: 2:30 PM - 2:55 PM	Session #704	Link: <a href="https://tx.ag/RCML4">tx.ag/RCML4</a>
<b>Performance of Students Enrolled in Mathematics Courses During COVID-19</b>		
Kathy Cousins-Cooper Sayed Mostafa Barbara Tankersley Shea Burns Guoqing Tang		North Carolina A&T State University North Carolina A&T State University
<p>Abstract: This study examines the factors affecting students' performance at an HBCU during the transition to remote instruction due to the COVID-19 pandemic.</p> <p>Key Themes: College Mathematics Content, Research Methodologies in Mathematics Education, Technology</p>		

Time: 2:30 PM - 2:55 PM	Session #705	Link: <a href="https://tx.ag/RCML5">tx.ag/RCML5</a>
<b>Pre-Service Teachers' Beliefs about Mathematics And Mathematics Teaching</b>		
Hyunkyung Kwon Danielle Bevan Robert M. Capraro Mary Margaret Capraro		Texas A&M University Texas A&M University
<p>Abstract: Through this presentation, the audience will learn about a small sample of pre-service teachers' beliefs about mathematics and mathematics teaching.</p> <p>Key Themes: Elementary Grades Mathematics Content, Pre-Service Teacher Education, Pedagogy, Affect (Beliefs, Attitudes, Efficacy)</p>		

Time: 3:00 PM - 3:25 PM	Session #801	Link: <a href="https://tx.ag/RCML1">tx.ag/RCML1</a>
<b>Black English and Its Role in Learning Mathematics While Black</b>		
Nickolaus Ortiz		Georgia State University
<p>Abstract: This presentation explores the ways that Black children communicate rigorous mathematics ideas through Black English. I borrow ideas from bilingual education to support this argument.</p> <p>Key Themes: Secondary Grades Mathematics Content, Pedagogy, Access &amp; Equity</p>		

Time: 3:00 PM - 3:25 PM	Session #802	Link: <a href="https://tx.ag/RCML2">tx.ag/RCML2</a>
<b>Examining the Use of a Book Project for Mathematical Learning</b>		
Ann Wheeler Winifred Mallam Keyaire Williams		Texas Woman's University Texas Woman's University
<p>Abstract: During this presentation, attendees will learn about the evolution of a book project for preservice teachers. Sample books will be shared.</p> <p>Key Themes: Pre-Service Teacher Education, Curriculum</p>		



**FRIDAY**

<b>Time: 3:00 PM - 3:25 PM</b>	<b>Session #803</b>	<b>Link: <a href="https://tx.ag/RCML3">tx.ag/RCML3</a></b>
<b>Algebra Teacher Self-Efficacy Instrument Validation for Preservice Teachers</b>		
Dittika Gupta Trena Wilkerson Colleen Eddy Elizabeth Ward Melissa Donham		Midwestern State University Baylor University
<p>Abstract: Validation of the Algebra Teacher Self-Efficacy Instrument (ATSEI) for pre-service math teachers through exploratory factor analysis will be shared.</p> <p>Key Themes: Pre-Service Teacher Education, Research Methodologies in Mathematics Education, Affect (Beliefs, Attitudes, Efficacy)</p>		

<b>Time: 3:00 PM - 3:25 PM</b>	<b>Session #804</b>	<b>Link: <a href="https://tx.ag/RCML4">tx.ag/RCML4</a></b>
<b>Examining Characteristics of Students in Quantitative Reasoning &amp; Pre-Cal I</b>		
Latoya Johnson Juliana Utley		Langston University Oklahoma State University
<p>Abstract: With student's having a choice between Quantitative Reasoning and Pre-calculus I (i.e., College Algebra), it is important to understand who is choosing to take each of these courses as well as both the beliefs and academic characteristics, as we can no longer rely on what these were in the past. Instructors need to understand the attitudes and beliefs of their students in order to anticipate their needs and create lessons to address these needs.</p> <p>Key Themes: College Mathematics Content, Affect (Beliefs, Attitudes, Efficacy)</p>		

<b>Time: 3:00 PM - 3:25 PM</b>	<b>Session #805</b>	<b>Link: <a href="https://tx.ag/RCML5">tx.ag/RCML5</a></b>
<b>Understanding Probability Literacy of High School Students</b>		
Fred Coon		Emporia State University
<p>Abstract: A study on probability literacy was conducted on high school students to gather their understanding of independence, randomness, and sample space.</p> <p>Key Themes: K-12 Education, Pre-Service Teacher Education, In-Service Teacher Education</p>		

<b>Time: 3:30 PM - 4:25 PM</b>	<b>Session #901</b>	<b>Link: <a href="https://tx.ag/RCML1">tx.ag/RCML1</a></b>
<b>Reflecting on the Past to Strengthen Instruction for All Students</b>		
Tina Mitchell Taajah Witherspoon		Wesley College University of Alabama at Birmingham
<p>Abstract: Teacher candidates' reflections of their past mathematics experiences and attitudes/beliefs about teaching math to diverse communities are explored.</p> <p>Key Themes: Pre-Service Teacher Education, Access &amp; Equity, Affect (Beliefs, Attitudes, Efficacy)</p>		

## FRIDAY

<b>Time: 3:30 PM - 3:55 PM</b>	<b>Session #902</b>	<b>Link: <a href="https://tx.ag/RCML2">tx.ag/RCML2</a></b>
<b>Implementing Lesson Study in Mathematics: The Impact on Preservice Teachers</b>		
Rachelle Meyer Rogers Ryann Shelton Trena Wilkerson		Baylor University Baylor University
Abstract: Presentation of efforts to implement lesson study with middle and secondary mathematics preservice teachers; includes description of the process, identifying barriers, and impact on participants.		
Key Themes: Pre-Service Teacher Education, Professional Development, Pedagogy		

<b>Time: 3:30 PM - 3:55 PM</b>	<b>Session #903</b>	<b>Link: <a href="https://tx.ag/RCML3">tx.ag/RCML3</a></b>
<b>Exploring PSTs' Spatial Ability, Self-Efficacy and Achievement</b>		
Tonya Rhodes Juliana Utley Jennifer Cribbs		Oklahoma State University Oklahoma State University
Abstract: This study explored mathematics self-efficacy (MSE), spatial ability, and achievement for 65 preservice teachers (PST). Findings indicate statistically significant differences between the secondary and elementary PST MSE scores with a moderate effect size on the overall MSE as well as the two subscales for this construct.		
Key Themes: Pre-Service Teacher Education, Affect (Beliefs, Attitudes, Efficacy)		

<b>Time: 3:30 PM - 3:55 PM</b>	<b>Session #904</b>	<b>Link: <a href="https://tx.ag/RCML4">tx.ag/RCML4</a></b>
<b>Computer Screens and Other Math Things</b>		
Jessica Showell Nickolaus Ortiz		Georgia State University Georgia State University
Abstract: This session explores parental satisfaction levels at a small private school in Atlanta in regard to available resources during virtual learning.		
Key Themes: K-12 Education, Pedagogy, Technology		

<b>Time: 3:30 PM - 3:55 PM</b>	<b>Session #905</b>	<b>Link: <a href="https://tx.ag/RCML5">tx.ag/RCML5</a></b>
<b>Preservice Dispositions Towards Using Integrated STEM to Teach Mathematics</b>		
Cathrine Maiorca Babette Benken		California State University, Long Beach California State University, Long Beach
Abstract: This study examines preservice teachers' dispositions towards using integrated STEM to teach mathematics after experiencing an integrated STEM unit in an elementary mathematics methods class.		
Key Themes: Pre-Service Teacher Education, Pedagogy, STEAM		

## FRIDAY

<b>Time: 4:00 PM - 4:25 PM</b>	<b>Session #1002</b>	<b>Link: <a href="https://tx.ag/RCML2">tx.ag/RCML2</a></b>
<b>Developing PSTs' Understanding of the Math Practices</b>		
Andria Disney Heidi Eisenreich		Utah Valley University Georgia Southern University
Abstract: This session will share findings from a study about PSTs' understanding of the Math Practices and explore implications for MTEs.		
Key Themes: Pre-Service Teacher Education, Pedagogy		

<b>Time: 4:00 PM - 4:55 PM</b>	<b>Session #1003</b>	<b>Link: <a href="https://tx.ag/RCML3">tx.ag/RCML3</a></b>
<b>Diagrams on Standardized Tests: Students Multiple Interpretations</b>		
Katie Taylor Olivia McGuirt Casey Hawthorne		Furman University Furman University
Abstract: While standardized tests present diagrams as if they possess a unique view, we document students' varied interpretations and the tension that arises.		
Key Themes: Elementary Grades Mathematics Content, Mathematical Knowledge for Teaching, Assessment		

<b>Time: 4:00 PM - 4:25 PM</b>	<b>Session #1004</b>	<b>Link: <a href="https://tx.ag/RCML4">tx.ag/RCML4</a></b>
<b>Reimagining Mathematics Teaching Online: Meeting the NCTM Process Standards</b>		
Patrick Wachira		Cleveland state university
Abstract: This paper presents an investigation into how two mathematics educators leveraged online learning environments and associated technology tools to meet the NCTM process standards and how this transformed their teaching.		
Key Themes: Pre-Service Teacher Education, Pedagogy, Assessment, Technology		

<b>Time: 4:00 PM - 4:25 PM</b>	<b>Session #1005</b>	<b>Link: <a href="https://tx.ag/RCML5">tx.ag/RCML5</a></b>
<b>Preservice Teachers' Experiences in Maker-Centered Learning Activities</b>		
Li Sun		Augustana University
Abstract: This session shares elementary preservice teachers' perceptions regarding Makerspace as part of the education component and the effects of engaging them in authentic maker-centered mathematics learning activities.		
Key Themes: Elementary Grades Mathematics Content, Pre-Service Teacher Education, STEAM		

## FRIDAY

<b>Time: 4:30 PM - 4:55 PM</b>	<b>Session #1101</b>	<b>Link: <a href="http://tx.ag/RCML1">tx.ag/RCML1</a></b>
<b>Exploring Effects of Whiteness in Math Instruction with Urban HS Students</b>		
Brian Dossey Sarah Pratt		Baylor University Baylor University
<p>Abstract: This mixed methods study explored the use of the math workshop approach (Sharp et al., 2019) with Black and Hispanic urban high school students to address potential impacts of whiteness on their learning.</p>		
<p>Key Themes: Pedagogy, Access &amp; Equity, Social Contexts for Teaching &amp; Learning</p>		

<b>Time: 4:30 PM - 4:55 PM</b>	<b>Session #1102</b>	<b>Link: <a href="http://tx.ag/RCML2">tx.ag/RCML2</a></b>
<b>Making Mathematical Connections by Maintaining Common Ground</b>		
Jonathan Foster		University of Georgia
<p>Abstract: I will present micro-interventions secondary student teachers made in discussions to maintain common ground to support connection-making.</p>		
<p>Key Themes: Pedagogy, Social Contexts for Teaching &amp; Learning</p>		

<b>Time: 4:30 PM - 4:55 PM</b>	<b>Session #1104</b>	<b>Link: <a href="http://tx.ag/RCML4">tx.ag/RCML4</a></b>
<b>Variant: Game-Based Learning for Calculus</b>		
Michael Rugh André Thomas		Texas A&M University Texas A&M University
<p>Abstract: We present Variant: Limits, a video game designed to help students learn foundational concepts in Calculus I.</p>		
<p>Key Themes: Secondary Grades Mathematics Content, College Mathematics Content, Other</p>		

<b>Time: 4:30 PM - 4:55 PM</b>	<b>Session #1105</b>	<b>Link: <a href="http://tx.ag/RCML5">tx.ag/RCML5</a></b>
<b>Informal STEM Learning: Expanding Students' Perceptions of Mathematics</b>		
Cathrine Maiorca Thomas Roberts Christa Jackson Margaret Mohr-Schroeder		California State University, Long Beach Bowling Green State University
<p>Abstract: This study examines middle grades students' perceptions of mathematics after participating in an informal STEM learning experience.</p>		
<p>Key Themes: Access &amp; Equity, STEAM, Informal Education</p>		

*Please join us for the Wilson Memorial Lecture & Concluding the Day*  
**Friday, February 26, 5:00 PM - 5:50 PM EST**  
 (Link: [tx.ag/RCML1](http://tx.ag/RCML1))



## SATURDAY SESSIONS

Please join us for the Founders Lecture  
 Saturday, February 27, 10:00 AM - 10:55 AM EST

(Link: [tx.ag/RCML1](http://tx.ag/RCML1))

<b>Time: 11:00 AM - 11:55 AM</b>	<b>Session #1201</b>	<b>Link: <a href="http://tx.ag/RCML1">tx.ag/RCML1</a></b>
<b>Facilitating Emergent Multilingual Students' Problem Solving and Discourse</b>		
Jill Neumayer DePiper Johannah Nikula		Education Development Center, Inc Education Development Center, Inc
Abstract: We will share findings on the impact of lessons designed to support emergent multilingual students' mathematical problem solving and discourse.		
Key Themes: Secondary Grades Mathematics Content, Curriculum, Access & Equity		

<b>Time: 11:00 AM - 11:55 AM</b>	<b>Session #1202</b>	<b>Link: <a href="http://tx.ag/RCML2">tx.ag/RCML2</a></b>
<b>Proportional Reasoning and Coordinating Units of Measure on a Ruler</b>		
Jianna Davenport Karen Zwanch		Oklahoma State University Oklahoma State University
Abstract: This qualitative case study examines the relationship between undergraduate students' proportional reasoning and their ability to coordinate two linear units of measure.		
Key Themes: Other		

<b>Time: 11:00 AM - 11:25 AM</b>	<b>Session #1203</b>	<b>Link: <a href="http://tx.ag/RCML3">tx.ag/RCML3</a></b>
<b>Students' Sense Making in Multi-Step Word Problems</b>		
Gabriel Matney Jonathan Bostic Miranda Fox		Bowling Green State University Bowling Green State University
Abstract: This session will share research findings on 4th grade students' sense making during multi-step problem solving.		
Key Themes: Elementary Grades Mathematics Content		

<b>Time: 11:00 AM - 11:25 AM</b>	<b>Session #1204</b>	<b>Link: <a href="http://tx.ag/RCML4">tx.ag/RCML4</a></b>
<b>Supporting Connections to Teaching in an Undergraduate Calculus Course</b>		
Kyle Turner James Alvarez		University of Texas at Arlington University of Texas at Arlington
Abstract: We examine how the use of applications to teaching in calculus supports instructors' and undergraduates' understanding of connections to teaching.		
Key Themes: College Mathematics Content, Mathematical Knowledge for Teaching, Pre-Service Teacher Education		

## SATURDAY

<b>Time: 11:30 AM - 11:55 AM</b>	<b>Session #1303</b>	<b>Link: <a href="http://tx.ag/RCML3">tx.ag/RCML3</a></b>
<b>First in Math Online Program Assesses Computational Thinking</b>		
Lynn Columba		Lehigh University
<p>Abstract: This study explores the effects on students' mathematical development when they engage daily with the First in Math online program.</p> <p>Key Themes: Elementary Grades Mathematics Content, K-12 Education, Professional Development, Curriculum, Pedagogy, Technology</p>		

<b>Time: 11:30 AM - 11:55 AM</b>	<b>Session #1304</b>	<b>Link: <a href="http://tx.ag/RCML4">tx.ag/RCML4</a></b>
<b>Mentoring Research Question Development in Applied Mathematics</b>		
Carlos Castillo-Garsow		Eastern Washington University
<p>Abstract: We discuss the role of faculty mentors in guiding applied mathematics undergraduates to developing a research question and accompanying model.</p> <p>Key Themes: College Mathematics Content, Pedagogy, STEAM, Social Contexts for Teaching &amp; Learning</p>		

<b>Time: 12:00 PM - 12:55 PM</b>	<b>Session #1401</b>	<b>Link: <a href="http://tx.ag/RCML1">tx.ag/RCML1</a></b>
<b>Facilitating Emergent Multilingual Students' Problem Solving and Discourse</b>		
Jill Neumayer DePiper Johannah Nikula		Education Development Center, Inc Education Development Center, Inc
<p>Abstract: We will share findings on the impact of lessons designed to support emergent multilingual students' mathematical problem solving and discourse.</p> <p>Key Themes: Secondary Grades Mathematics Content, Curriculum, Access &amp; Equity</p>		

<b>Time: 12:00 PM - 12:55 PM</b>	<b>Session #1402</b>	<b>Link: <a href="http://tx.ag/RCML2">tx.ag/RCML2</a></b>
<b>Supporting Students' Anticipation of Scale Factor</b>		
Tinh Dang Karen Zwanch		Oklahoma State University Oklahoma State University
<p>Abstract: This study uses the multiplicative concepts to model students' geometric reasoning in the context of scale factor and units of measurement.</p> <p>Key Themes: Other</p>		

## SATURDAY

<b>Time: 12:00 PM - 12:25 PM</b>	<b>Session #1403</b>	<b>Link: <a href="https://tx.ag/RCML3">tx.ag/RCML3</a></b>
<b>The Impact of Problem-Solving Discussions on Heuristic Use</b>		
Sam Rhodes		Georgia Southern University
Abstract: In this mixed-methods study I investigated the impact of problem-solving discussions on fifth-grade students' use of heuristics and their metacognitive awareness.		
Key Themes: Elementary Grades Mathematics Content, Professional Development, Other		

<b>Time: 12:00 PM - 12:25 PM</b>	<b>Session #1404</b>	<b>Link: <a href="https://tx.ag/RCML4">tx.ag/RCML4</a></b>
<b>Critical Self-Reflexivity, Mathematics Education, and CS Teachers</b>		
Megan Che Evan Baker Rhoda Latimer		Clemson University Clemson University
Abstract: This session presents findings from three years of culturally responsive professional development with prospective computer science teachers (PCSTs), focusing on the nature of and our understandings of critical self-reflexivity from the perspectives of PD facilitators and the PCSTs.		
Key Themes: In-Service Teacher Education, Professional Development, Social Contexts for Teaching & Learning		

<b>Time: 12:00 PM - 12:55 PM</b>	<b>Session #1405</b>	<b>Link: <a href="https://tx.ag/RCML5">tx.ag/RCML5</a></b>
<b>Mathematics as Human Enterprise: De-Colonizing the Mathematics Curriculum</b>		
Stacy Reeder Kate Raymond		University of Oklahoma University of Oklahoma
Abstract: We need to intentionally work to de-colonize the mathematics curriculum in order to empower all students and give everyone access to its beauty and power.		
Key Themes: In-Service Teacher Education, Curriculum, Social Contexts for Teaching & Learning		

<b>Time: 12:30 PM - 12:55 PM</b>	<b>Session #1503</b>	<b>Link: <a href="https://tx.ag/RCML3">tx.ag/RCML3</a></b>
<b>Our Number Sense Journey: The Decomposition Detour</b>		
Kay Wohlhuter Mary Swarthout		University of MN Duluth Sam Houston State University
Abstract: Two mathematics educators created a literature review to inform the number sense development conversation around the ideas of number decomposition, fluency, and flexibility.		
Key Themes: Mathematical Knowledge for Teaching, Pre-Service Teacher Education, Professional Development		

## SATURDAY

<b>Time: 12:30 PM - 12:55 PM</b>	<b>Session #1504</b>	<b>Link: <a href="http://tx.ag/RCML4">tx.ag/RCML4</a></b>
<b>Preparing K-8 Teachers to Pose Word Problems: Embracing the Opportunity to Promote Equity and Multiculturalism</b>		
Rachael Welder Ashley Williams		Texas A&M University Texas A&M University
<p>Abstract: This presentation highlights strategies implemented in an undergraduate problem-solving course for prospective K-8 teachers to facilitate their development of problem-posing skills as well as promote equity and cultural awareness when posing word problems.</p> <p>Key Themes: Problem Posing, Promoting Equity and Multiculturalism in Mathematics, and Teacher Education</p>		

*Please join us for the Business Meeting & Closing Remarks*  
**Saturday, February 27, 1:00 PM - 2:00 PM EST**  
 (Link: [tx.ag/RCML1](http://tx.ag/RCML1))



## RCML Business Meeting

Las Vegas, NV

Friday, March 6, 2020

12:00 pm -1:20 pm

### Minutes

- Call to Order  
Meeting was called to order at 12:28 pm  
Eric L. Chronister welcomed attendees to Vegas  
Recognition of first-time attendees, returning attendees and distance traveled.  
Overview of Executive Committee
- Approval of March 2019 Business Meeting minutes  
Lynn Columba moved to approve; Jair Aguilar seconded. Membership voted to approve. No abstentions or nay votes.
- Membership report  
Membership is at 237 members.  
Members were reminded to follow and like RCML Twitter and Facebook.
- Treasurer report  
Netted \$6,410 in the past year. Bank balance is \$62,623.
- Election results
  - Election results were shared.
    - Conference Committee (Natalia Bailey & Tony Thompson)
    - Publications Committee (Georgia Cobbs & Katrina Nelson)
    - President-Elect (Travis Olson)
    - VP Conferences (Sarah Pratt)
    - Treasurer (Lynn Columba)
    - Interim Secretary (Colleen Eddy)
    - Membership and Communication Coordinator (Ex-Officio) (Natalia Bailey)
  - The nominations for the 2020 slate of officers is available, and hard copies or electronic forms could be given Megan Che or sent to Travis Olson ([travis.olson@unlv.edu](mailto:travis.olson@unlv.edu)). Positions available for nominations are Secretary, Conference Committee (2), & Publications Committee (2).



- Conference leadership
  - Bill Speer was recognized as Conference Chair and Jeff Shih as Conference Co-Chair
  - Linda Venenciano was recognized as Program Chair and Eric Kobayashi as Assistant Program Chair
  - For the Vegas conference, there are 173 registered (126 regular, 45 students, 2 guests). 85 presentations, 14 posters, and 132 presenters.
  - The Conference Committee was recognized for their work (Melanie Fields, Lucas Foster, Travis Mukina, and Jamaal Young, Kate Raymond, Nesrine Sahan).
- Future sites were announced:
  - Denton Texas (2021) February 25-27, Embassy Suites — Winifred Malam & Ann Wheeler will be Conference Chairs, Jamaal Young is Program Chair
  - Columbia, SC (2022) Sean Yee & Christie Martin will be Conference Chairs.
  - 50<sup>th</sup> Annual Conference (2023) would love feedback on where to host this special conference.
- Recognition for service on Conference Committee: Melanie Fields and Lucas Foster
- Publications
  - Recognition of service as the 2020 proceedings editors: Jennifer Cribbs & Hope Marchionda
  - For the 2020 proceedings, there were 14 manuscripts accepted out of 30 submissions (47% acceptance rate). Reviewers were thanked, and any suggestions should be directed to Jennifer Cribbs and Hope Marchionda.
  - The 2021 proceedings editors were announced (Hope Marchionda and Summer Bateiha).
  - Acceptance rate for v11 of IML was 9.2%
  - Jen Paul recognized as managing editor for Taylor & Francis
  - Drew Polly was recognized as IML Editor
  - Jonathan Bostic and Colleen Eddy were recognized as Associate Editors.
  - Conference journal presentation was announced (Apollo 1 room today at 11:00–11:50pm)
- Reviewers for IML were recognized, and a request for more reviewers was discussed.
- *Intent and enactment: Writing in mathematics for conceptual understanding* by Marc Nachowitz had the highest Altmetrics rating.
- Increasing download rates was discussed. In 2018, there were 6,050 article downloads.
- *Rehumanizing the Mathematics Education of Students with Disabilities: Critical Perspectives on Research and Practice* was the most downloaded IML article in 2019.
- Reporting of metrics for the IML journal.
  - Special Issue for 2020 Social Justice and Equity in Mathematics Teaching and Learning, Editors: S. Megan Che, Carlos Nicolas Gomez, and Dennis Kombe
  - A call for Special Issue proposal for v13 (2021) is available.



- Publications Committee was recognized (Gabriel Matney, Valerie Sharon, Kathy Smith, Jennifer Cribbs, Colleen Eddy, Jim Telese, Denise Kombe, & Allan Zollman). The committee solicits manuscripts and reviewers, reviewed for IML, assisted proceedings editors, and assisted with content checks for the website and newsletter.
- Recognition of Kathy Smith and Valerie Sharon for service on the Publication Committee
- The newsletter editor (Bill McGalliard) was recognized, and the content throughout the year of Intersection Points was provided).
- Thanks to Sheryl Maxwell, Sarah Pratt, Julian Utley, Alan Zollman, Dan Brahier, Megan Che and all board members, Drew Polly, Jonathan Bostic, and Colleen Eddy, IML Editorial Board, Jen Paul and many others at Taylor and Francis
- Recognition of Colleen as the new VP of Publications
  - Progress and Priorities
  - Increased social media presence
  - Membership and communications coordinator
- Graduate Student Involvement
  - Explore ways to grow graduate student membership and participation
  - Revisit scholarships for grad students (awards available and how to promote them)
  - Consider ex-officio graduate student Board member
  - Consider Dissertation/Thesis Award
- Recognition of memorial scholarship awardees
  - The 2019 Memorial Scholarship in Honor of Bill and Marjorie Speer awardee Natalia Bailey, non-tenured was recognized and Joash Geteregechi, Graduate Student
- Recognition of RCML service
  - Sarah Smitherman Pratt – VP of Conferences
  - Travis Olson – Secretary
  - Dan Brahier, Past-President
- Sue Brown won raffle for two nights at Alexis Park for conference.
- Francis “Skip” Fennell was recognized James W. Heddens Distinguished Service Award. Dr. Bill Speer presented the award to Dr. Fennell. Dr. Fennell provided words of appreciation.
  - This award will be up to once annually. Nominations are made to the Board in the fall. The Executive Board will select the awardee.
- Adjourn.
  - The meeting was adjourned at 1:28 pm.

## INDEX OF PRESENTERS

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