RESEARCH COUNCIL ON MATHEMATICS LEARNING

REFLECTING ON THE PAST, REFRACTING INTO THE FUTURE

CONFERENCE 2023

MARCH 2-4 2023

75 E. HARMON AVE, LAS VEGAS, NV 89169

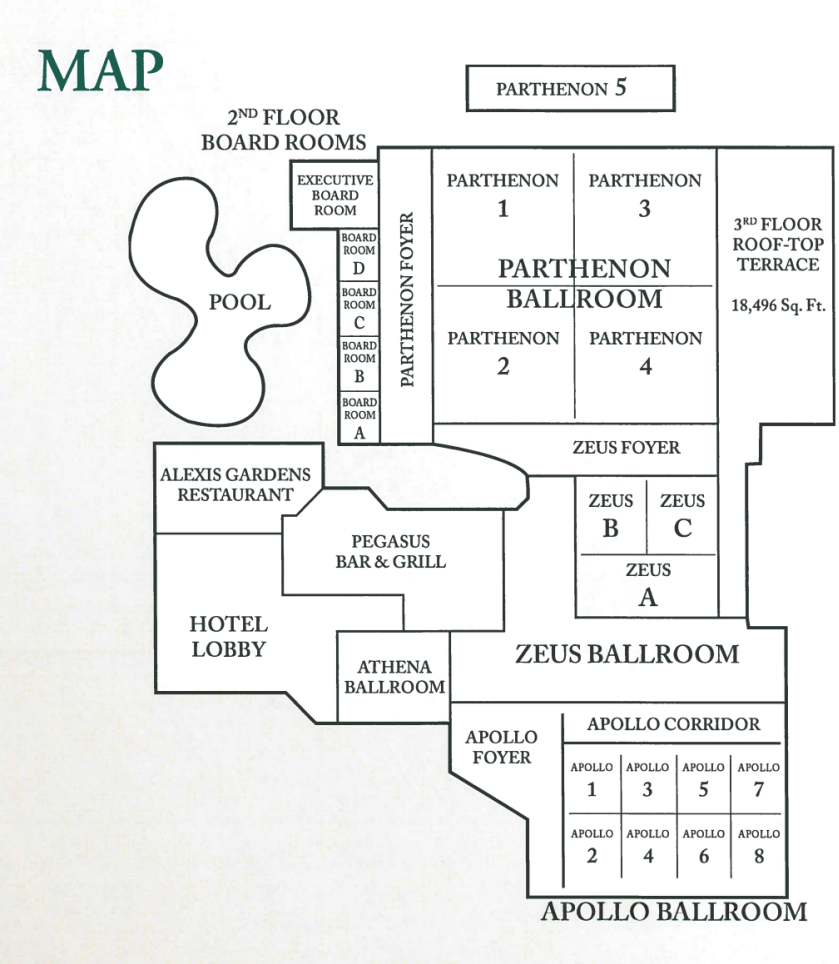
Research Council on Mathematics Learning
50th Annual Conference

Reflecting on the Past, Refracting into the Future

Alexis Park All-Suite Resort, Las Vegas, Nevada

March 2-4, 2023

MAP OF Alexis Park All-Suite Resort



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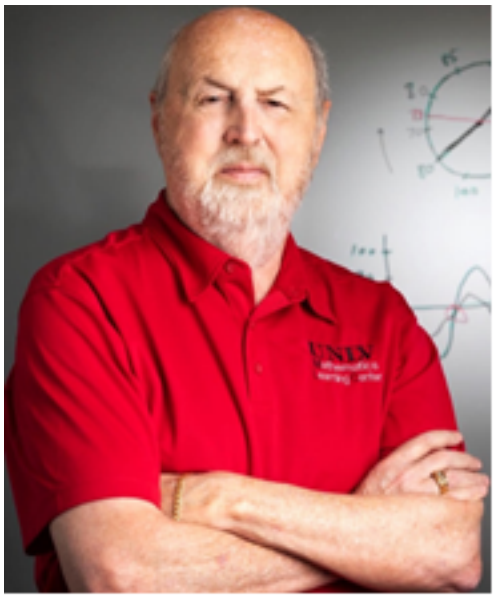
Welcome from the 2023 Program Chair

Welcome to the 50th annual RCML Conference. We are honored to host this year's conference at the Alexis Park All-Suite Resort in Las Vegas, Nevada, 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!



William R. Speer
University of Neveda, Las Vegas
2023 Conference Chair

Special Thanks

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

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Conference Events at a Glance

Thursday, March 2, 2023

9:00 AM to 12:30 PM RCML Board of Directors Meeting
Executive Board Room

1:00 PM to 5:00 PM Registration Table
Apollo Foyer

3:00–5:00 PM Poster Session
Apollo Foyer and Hallway

4:30–5:30 PM Welcome Reception
Zeus Ballroom

5:30–6:30 PM Wilson Memorial Lecture: Andre Thomas
Zeus Ballroom
Introduced by: *Jamaal Young*

Friday, March 3, 2023

7:00 AM–5:00 PM Registration Table
Apollo Foyer

7:00 AM–8:00 AM Continental Breakfast
Apollo Corridor

8:00 AM–10:50 AM Breakout Sessions
Apollo 1 through 7

11:00 AM–12:50 PM Lunch and RCML Business Meeting
Zeus Ballroom

1:00 PM–3:55 PM Breakout Sessions
Apollo 1 through 7

4:00 PM–4:25 PM Founders Toast
Zeus Ballroom

5:00 PM–6:00 PM Founders Lecture**:** *Jon M. Engelhardt*
Zeus Ballroom
Introduced by: *William Speer*

Saturday, March 4, 2023

7:00 AM–5:00 PM Registration Table
Apollo Foyer

7:00 AM–8:00 AM Continental Breakfast
Apollo Corridor

8:00–10:55 AM Breakout Sessions
Apollo 1 through 7

11:00 AM–12:30 PM Lunch & Closing Slide Show

Wilson Memorial Lecture: André J. Thomas

Thursday, 5:30 pm, *Zeus Ballroom*

Introduction by Jamaal Young

Title: *Math is All Around Us*

Biography: André Thomas' passion for game-based learning resonates inside and outside of the classroom. A graduate of LCAD MFA in Game Design and currently pursuing a PhD in Curriculum and Instruction. André founded and serves as the director of the LIVE Lab in the School of Performance, Visualization and Fine Arts at Texas A&M University, where he also teaches game design, game development and interactive graphics techniques. In 2014, he founded Triseum, where he serves as CEO and leads the creation of its award-winning educational video games. André has been named one of the top 100 EdTech influencers. He is an EdTech Leadership award winner, National Academy of Sciences board member, National Arts Education Association lead instructor, and Chillennium Game Jam chair. André also has been invited to speak at numerous education and technology events both in the U.S. and abroad, including SXSW, TEDx, ASU-GSV, BETT, Chinese Academy of Fine Arts, Austrian Ministry of Education and European Schoolnet. His game-based learning insights and ideas are featured in The Conversation, the Huffington Post, Austin Business Journal, eCampus News and Learning Solutions Magazine, to name a few. With more than 25 years in CGI production, André has worked around the world on legendary video games, live action feature films and memorable commercials. Previously he was Head of Graphics for EA Sports Football games (including NCAA, Head Coach, NFL Tour and Madden, the longest running and most successful sports franchise in games industry). He also created graphics for such notable films as Men in Black, Con Air, Independence Day, Valiant, Ant Bully and Tomorrow Never Dies.

Founders Lecture: Jon Engelhardt

Friday, 4:30 pm, Zeus Ballroom

Introduction by William Spear

Title: Whither Thou Goest—The Future of University-Based Teacher Education

Dr. Jon Engelhardt is Dean Emeritus of Baylor University's School of Education, retiring in 2015 after 43 years in higher education. He began his professional education career as a middle school math teacher (Tempe, AZ) in the late 1960's--when middle school, open instructional spaces and cross-subject teaming were "new" ideas. Believing he could ultimately help more children through university-based teacher education, he pursued advanced degrees in mathematics education and spent the next 16 years as faculty and in various leadership roles at Arizona State University. In particular, his teaching and scholarship focused on helping pre- and in-service teachers understand how children come to understand and misunderstand mathematical ideas, the problems they encounter in learning those ideas, and ways to address those problems—all topics addressed in his numerous publications. As a natural extension of this work, he joined initial efforts to establish a national professional organization that eventually became RCML (1973). At ASU, he developed a mathematics clinic which served for 15 years as a community service as well as both an academic course and practicum for in-service teachers and a venue undergirding his research. Built upon his commitment to helping children and teachers grow and develop, he participated in and led early efforts at ASU to redesign undergraduate teacher education, advocating for and building a closer connection between teacher preparation and school-based practice (K-12). Having concurrently been thrust into various college-level leadership roles, he ultimately pursued broader leadership as an academic dean. Over the next 28 years, he served as Dean of Education at four universities—University of Texas at El Paso, Northern Arizona University, Wichita State University, and most recently Baylor University.

Nevertheless, his heart and professional self-identify is as a mathematics educator. Much of his work as a dean included redefining teacher education as a clinical enterprise and building partnerships between universities, public schools and local communities that are focused on improving the effectiveness of both schools and educator preparation. In particular, he promoted an understanding of how Schools of Education are key partners in the systemic development and improvement of K-12 public education, how K-12 schools/practitioners are key partners in the systematic preparation of pre- and in-service teachers, as well as how critically importance it is for Schools of Education and K-12 schools/practitioners to engage as partners with local communities and policy-makers in support of K-12 education.

For example, as Education Dean at UTEP, he strengthened a site-based partnership with local school districts to upgrade preparation of emergency-certified teachers. Calling itself a 21st century "normal school", at NAU he expanded innovative site-based preservice teacher preparation partnerships with school districts across Arizona, including in rural communities on the Mexican border and on Native American reservations. At WSU, he established a partnership with Boeing to retool down-sized aircraft engineers as future math and science teachers in South Central Kansas. And most recently at Baylor, he led development of a cutting-edge professional practice doctorate (EdD) in Educational Leadership as well as organized the Greater Waco Area Superintendents group to facilitate networking among local school district leaders and the School of Education dean--increasing collaboration across school districts and orchestrating political advocacy in support of Waco area public schools with the Texas Legislature. Across his career he has served in a variety of national leadership roles, including helping found two professional/research organizations (RCML and Project 30 Alliance), and serving on executive boards of national associations for teacher education (AACTE) and Education school accreditation (NCATE, now CAEP). He was a founding board member for a national organization redefining the professional practice doctorate in Education (Carnegie Project for the Education Doctorate) and was a member and chaired a national representative organization (ACSR) in support of state associations of education schools. For his leadership, service, and accomplishments, he has received a variety of recognitions, including the Distinguished Administrator award for Higher Education from the Arizona School Administrators Association (1997), the Robert Howsam Award (2015) for lifetime achievement from his Texas colleague Education deans, a Baylor University undergraduate scholarship named in his honor (2015), and induction into Wichita State University's Hall of Fame (2022). Dean Engelhardt received bachelors and master's degrees in elementary education from Arizona State University before earning a Ph.D. in mathematics education from the University of Texas, Austin (1972).

Thursday, March 2

TIME & SESSION INFORMATION

9:00 AM – 12:30 PM
RCML Board of Directors Meeting
Location: Executive Board Room

1:00 PM – 5:00 PM
Conference Registration
Location: Apollo Foyer

Poster Sessions

3:00 PM – 5:00 PM

Incorporation of Growth Mindset in Statistic Textbooks
Location: Apollo Foyer and Apollo Hallway
Speaker: Meg Botello
To what extent do two statistics books designed for college students' learning promote a growth mindset through learning processes, abilities, beliefs, and understanding rationales?

Developing Culturally-Relevant Pedagogy in Math
Location: Apollo Foyer and Apollo Hallway
Speaker: Laurie James
Incorporate best practices aimed at improving culturally-relevant pedagogical approaches and mathematical content knowledge of underrepresented minority (URM) preservice teachers through collaborative hands-on problem-solving activities.

Effects of Using Figures in Mathematics Assessments Items
Location: Apollo Foyer and Apollo Hallway
Speakers: Keith Damschroder, Gabriel Matney
Figure use in assessment can affect student sensemaking and problem-solving. Included is research on different types of figure usage on assessment.

Open Problems in Mathematics: Evaluating Connections in Student Discourse
Location: Apollo Foyer and Apollo Hallway
Speakers: Kaitlyn Solymosi, Gabriel Matney
We share research on student discourse demonstrating different mathematical connections made during open problem-solving.

Environmental Effects of Programmatic Informal Learning Experiences on PSTs

Location: Apollo Foyer and Apollo Hallway

Speakers: William Brandt, Gabriel Matney

The poster will share research about informal learning environmental outcomes on classroom culture preparing Preservice Teachers successfully engage students.

Game-Based Learning: Effects on Retention and Success in Calculus

Location: Apollo Foyer and Apollo Hallway

Speakers: Michael S. Rugh, Dillon Miller, Andre' Thomas

The purpose of this poster presentation is to discuss the use of video games for learning in an introductory calculus course.

Guided Notes: Helping to Learn Essential Math Vocabulary and Concepts?

Location: Apollo Foyer and Apollo Hallway

Speakers: Mary B. Swarthout, Julie Herron

This study explores the use of Guided Notes in elementary pre-service mathematics content courses focusing on the development of essential vocabulary and conceptual learning.

Exploring English Learners: Language While Mathematical Problem Solving

Location: Apollo Foyer and Apollo Hallway

Speaker: Kendra Cash

Using Harper's Anti-deficit Achievement Framework, this study examines how Black educators view potential, motivation, and cultural capital in Black students in math education.

Score Reports: What Details Do School Personnel Want?

Location: Apollo Foyer and Apollo Hallway

Speakers: Ben Lawson, Gabriel Matney, Jonathan Bostic

Standardized testing and score reports drive decisions about learners. We discuss school personnel needs and preferences for their redesigned report.

Exploring Multilingual Learners' Language While Mathematical Problem Solving

Location: Apollo Foyer and Apollo Hallway

Speakers: Jodie Cahill, Jonathan Bostic

The purpose of this poster is to explore the ways Multilingual Learners experience problem-solving.

Data Science for High School Students

Location: Apollo Foyer and Apollo Hallway

Speakers: Yeil Kwon, Nesrin Sahin

In this project, we have provided a week-long data science workshop for high school students where they used CODAP and R to analyze the real data sets. We have measured student attitudes towards statistics and statistical knowledge before and after the workshop.

Sex & Stats: Utilizing Statistics to Influence Sexual Health Education

Location: Apollo Foyer and Apollo Hallway

Speakers: Kaileigh Roan, Sara Vera, Jamaal Young

This study focuses on the use of sexual health data in high school statistics courses to influence student engagement and statistical understanding.

Wilson Memorial Lecture and Reception

5:30 PM – 6:30 PM

Wilson Memorial Lecture - Math is all around

Location: Zeus Ballroom

Speaker: Andre' Thomas

Games and video games have become one of the dominant forms of entertainment today with 97% of students playing 4 hours or a week. Many of them are not aware of the mathematics in the games and how math delivers highly engaging and entertaining best-selling video games. This talk will bridge the gaps and answer your questions.

Friday, March 3

TIME & SESSION INFORMATION

7:00 AM – 5:00 PM
Conference Registration

7:00 AM – 8:00 AM
Continental Breakfast
Location: Apollo Corridor
Come join us for breakfast

Breakout Session 1

8:00 AM – 8:50 AM
How do we define mathematics in mathematics education?
Location: Apollo 1
Speaker: Eva Thanheiser
We tackle various definitions of mathematics and their implication on student-centered classroom, context, and culture.

8:00 AM – 8:50 AM
What should I look for in a quantitative instrument?
Location: Apollo 2
Speakers: Jonathan Bostic, Erin Krupa, Timothy Folger
Participants will learn about key aspects to explore when selecting quantitative assessments. They will have a first look at a measurement repository current in development.

8:00 AM – 8:50 AM
Closing Mathematics Achievement Gaps with Desmos: Understanding Why
Location: Apollo 3
Speaker: Emma Bullock
This presentation focuses on why using Desmos may have led to significantly better results in closing achievement gaps between two high schools.

8:00 AM – 8:25 AM

Principles for Development of Mathematical Escape Rooms

Location: Apollo 4

Speaker: Micah Stohlmann

The principles for the development of mathematical escape rooms will be described as well as the benefits of the implementation of escape rooms with students.

8:00 AM – 8:25 AM

Mathematics Teacher's Technological Learning during Year One of COVID

Location: Apollo 5

Speakers: Kate Raymond, Ja'Corie Maxwell, Kelly Baum-Sehon

Using the TPACK framework, we explore the technological knowledge developed by secondary mathematics teachers during the first year of COVID.

8:00 AM – 8:25 AM

STEM Integration in a Pre-Calculus and Physics Course

Location: Apollo 6

Speaker: Courtney Fox

This paper explores the integration of mathematics and science as a means to improve learning for secondary and post-secondary students.

8:00 AM – 8:25 AM

Empathetic Methodologies: Opening the Epistemological Door for Others

Location: Apollo 7

Speakers: Dana Cox, Suzanne Harper

We will reflect on the ways in which our methodological choices influence the diversity of voices that contribute to what we know about mathematics learning.

8:30 AM – 8:50 AM

The Importance of WHY: Investigating Teacher's Knowledge of Student Errors

Location: Apollo 4

Speaker: John Ezaki

This study provides a novel measure for teachers, knowledge of student misunderstandings of ratios and proportional relationships and relates this knowledge to student achievement.

8:30 AM – 8:50 AM

A Mathematical Modeling Lesson from a Social Justice Perspective

Location: Apollo 5

Speaker: Ayse Ozturk

This study shows a model of teaching practices with the intent of empowering students to reach quantitatively sound conclusions while deciding how the raises should be determined in a small company.

8:30 AM – 8:50 AM

Partitioning Circular and Rectangular Figures: Challenges related to Number

Location: Apollo 6

Speaker: Karen Zwanch

This study asks whether middle-school students partition circles and rectangles differently, and how numerical reasoning is related to differences.

8:30 AM – 8:50 AM

Prospective Teachers' Perceptions of Enacted Number Talks

Location: Apollo 7

Speakers: Byungeun Pak, Jillian Cavanna, Brent Jackson

In this session, we examine what prospective teachers (PSTs) perceive as significant in their enacted number talks in practicum classrooms. Enacting number talks offers approximations of challenging teaching practices, including facilitating mathematical discussions and building from student thin...

Breakout Session 2

9:00 AM – 9:50 AM

Reimagining Curriculum: Turning Towards Underrepresented Communities

Location: Apollo 1

Speakers: Summer Bateiha, Sadia Mir

Mathematics textbooks in Qatar contain little use of meaningful cultural, historical, and geographical context. We focus on creating such holistic curricular material and teachers' responses.

9:00 AM – 9:50 AM

Dialogue about Minimizing Mathematics Problem-Solving Bias

Location: Apollo 2

Speakers: Gabriel Matney, Kristin Koskey, Dara Bright

Minimizing bias is an important issue in universal test design. We offer a context for conversation about designing culturally-relevant, real-world and universal mathematics problem-solving tasks for the purpose of students, access, equity, and assessment.

9:00 AM – 9:50 AM

De/Reconstructing Black Preservice Elementary Teachers Identities & Visions

Location: Apollo 3

Speakers: Jared Webb, Dinah Gause, Lauren Raven

In this session, we share analysis of Black elementary education students entering identities and visions for mathematics teaching and resulting design of a supportive experience.

9:00 AM – 9:25 AM

Preservice Teachers Learning to Teach with Mediated Field Experiences

Location: Apollo 4

Speaker: Holly Pinter
This presentation will focus on the immersive experience of preservice teachers working on site at a laboratory school with 8th grade students.

9:00 AM – 9:25 AM

An Examination of Future Teacher's Mathematical Writing

Location: Apollo 5
Speakers: Erin Smith, Robert "Alex" Smith, Sarah Powell, Madeline Price
In this presentation, we share a mathematical writing (MW) assessment tool and findings from a cross-institutional mixed-methods study examining future elementary teachers, MW competencies.

9:00 AM – 9:25 AM

The Role of Required vs. Optional Homework in Introductory Statistics

Location: Apollo 7
Speakers: Melanie Autin, Hope Marchionda
We will share how the role of a homework requirement can affect students' attitudes towards statistics and their performance in an introductory class.

9:30 AM – 9:50 AM

Describing Students' Errors on a Mathematical Problem-Solving Measure

Location: Apollo 4
Speakers: Timothy Folger, Christopher Fornaro, Kate Fan, Dara Bright
This presentation shares findings from a study of seventh-grade students, mathematical errors on the Problem-Solving Measure for grade 7 (PSM7).

9:30 AM – 9:50 AM

What outside of school factors predict mathematics mindset?

Location: Apollo 5
Speakers: Stacey Michie, Jennifer Cribbs, Juliana Utley
This study examines what outside of school factors and supports (e.g., family STEM interest) predict a mathematical mindset.

9:30 AM – 9:50 AM

Effects of Using the Class-Based Criteria for Proof

Location: Apollo 6
Speakers: Yi-Yin (Winnie) Ko, Ashley Johnson
In this presentation, we share how using the communal rubrics can promote undergraduate students, perspectives on what makes an argument a proof.

9:30 AM – 9:50 AM

Alternative Assessments and Calculus Students' Beliefs and Abilities

Location: Apollo 7
Speakers: Tracey Howell, Trina Palmer, Tamar Avineri

We present preliminary findings from a pilot study conducted in a Calculus I course that incorporates alternative assessments of both formative and summative natures.

10:00 AM – 10:50 AM

Reliably and Validly Assessing Elementary PST Math Vocabulary Understanding

Location: Apollo 1

Speakers: Emma Bullock, Amy Ray, Julie Herron

This session describes a process for developing valid and reliable classroom vocabulary assessments for an elementary PST math content course.

10:00 AM – 10:25 AM

Statistics through the Lens of Social Justice: A Scoping Review

Location: Apollo 5

Speakers: Miriam Sanders, Micayla Gooden

This scoping review describes the attributes of the extant literature surrounding mathematics teacher training in teaching statistics through the lens of social justice.

10:00 AM – 10:25 AM

Using Assessment to Investigate Alignment Between Beliefs and Practices

Location: Apollo 3

Speakers: Sarah Pratt, Joseph Raymond Tedeschi

This study utilized AssessToday (Eddy et al., 2017) to generate conversations regarding enactment of formative assessment strategies which added to Kirshner, (2016) crossdisciplinary framework of alignment among learning targets, learning theory, and pedagogical practice.

10:30 AM – 10:50 AM

Do Teacher and Student Outcomes Differ? Teacher Tracking Refractions

Location: Apollo 2

Speakers: Kristian Edosomwan, Miriam Sanders

This study examines the effects of teacher tracking in mathematics education on teachers, feelings of belonging measured by their collective responsibility and professional learning communities using a multiple logistic regression.

10:30 AM – 10:50 AM

Contributing Factors of Mathematics Anxiety for Fifth Through Ninth Grades.

Location: Apollo 3

Speakers: Jacob Martin, Jennifer Cribbs, Juliana Utley

We will discuss connections between supports and background factors (gender, Emergent Bilingual Status) on 5th-9th grade students mathematics anxiety.

10:30 AM – 10:50 AM

Teacher Conception of PCK: Novice-Expert Analysis Using Meaning Coding

Location: Apollo 7

Speakers: Katrina Villalobos, Mourat Tchoshanov
The study-in-progress aims at comparing novice, (a sample of 20 teachers) understanding vs. expert perspective on Pedagogical Content Knowledge (PCK).

Lunch, RCML Business Meeting, and Celebration

11:00 AM – 12:50 PM
Lunch and RCML Business Meeting
Location: Zeus Ballroom

Breakout Session 3

1:00 PM – 1:50 PM
Exploring Teacher Knowledge and Noticing with Eye-Tracking and 360 Video
Location: Apollo 1
Speakers: Karl Kosko, Maryam Zolfaghari, Christine Austin
Using data collected from eye-tracking enabled VR headsets, we examined patterns in preservice teachers, attending behavior and assessed PCK.

1:00 PM – 1:50 PM
An Analysis of Pre-Service Teacher's Task Selection in the edTPA
Location: Apollo 2
Speakers: Tony Thompson, Charity Cayton
Research on tasks used by Preservice Teachers in the edTPA with analysis for potential and implemented levels of cognitive demand.

1:00 PM – 1:50 PM
Mathematics Specialists & Teacher Leaders: Refraction & Reflection
Location: Apollo 3
Speakers: Margret Hjalmarson, Francis (Skip) Fennell, Courtney Baker
The session discusses the Special Issue of Investigations in Mathematics Learning focusing on mathematics specialists and mathematics teacher leaders, synthesizing existing research, and future directions.

1:00 PM – 1:25 PM
Eating by numbers: Problematizing numerical constructions of anti-fatness
Location: Apollo 5
Speakers: Alexandra R Aguilar, Carlos Nicolas Gómez Marchant
In this session, we unpack how some school mathematical word problems can perpetuate and reconstruct anti-fatness in the classroom.

1:00 PM – 1:25 PM

Mathematics & Identity: Lived Experiences of Prospective Teachers of Color

Location: Apollo 7

Speakers: Amy Rae Johnson, Chandel Burgess, Gerardo Sanchez Gutierrez

We explore the lived experiences and identities of prospective Teachers of Color and how they influence perceptions of themselves as doers and teachers of mathematics. Using Sfard and Prusak's (2005) conceptualization of identity as a narrative, our goal to...

1:30 PM – 1:50 PM

Rebuilding Student's Love for Mathematics

Location: Apollo 5

Speakers: Yi-Yin (Winnie) Ko, Connor Goodwin, Erick Herrera

In this presentation, we share how our origami activities support students whose mathematical learning was affected by the COVID-19 pandemic.

1:30 PM – 1:50 PM

Area of Polygons with Elementary PSTs: Evolution of a Lesson

Location: Apollo 6

Speakers: Beth Cory, Amy Ray

This session explores iterations of an area lesson for elementary PSTs based on students, struggles, curricular constraints, and best practices.

1:30 PM – 1:50 PM

AFROMathematics-Algorithms, Formulas, Reasoning, & Ordering in Black Hair

Location: Apollo 7

Speaker: Jessica Showell

The presenter draws upon personal experiences engaging in Black Hair Culture while identifying the mathematical practices involved within.

Breakout Session 4

2:00 PM – 2:50 PM

Finding the M in STEM

Location: Apollo 1

Speaker: Sue Brown

Mathematics Learning benefits less than the other disciplines in programs claiming to focus on STEM integration. Participants will examine how Mathematics can be infused in STEM investigations.

2:00 PM – 2:50 PM

Picture Books, Technology, and Students: Connecting Discourse and Feedback

Location: Apollo 2

Speakers: Nicole Gearing, Renee Wakamatsu, Andrew Goodman
This project connects elementary students and mathematical discourse through picture book texts with analysis and feedback from preservice teachers via whiteboard technology.

2:00 PM – 2:50 PM
A Systematic Review of Research on Partnerships in Mathematics Education
Location: Apollo 3
Speakers: Megan Che, Karen C. Enderle, Lianne Jones
We present findings from a literature review investigating our understandings of the processes inherent with research partnerships and collaborations in mathematics education.

2:00 PM – 2:25 PM
Challenges Students Face Locating Isometry Images on a Grid
Location: Apollo 4
Speaker: Leah Frazee
This presentation examines the spatial and analytic reasoning students use to locate rotation and reflection images of points and triangles in a dynamic geometry environment.

2:00 PM – 2:25 PM
Fostering Student Perceptions of Enjoyment and Usefulness in Calculus
Location: Apollo 5
Speaker: Babette M. Benken
This study examined Calculus I students' perceptions of usefulness and enjoyment in Calculus.

2:00 PM – 2:25 PM
The Road not Taken: Using Alternative Assessments in Mathematics
Location: Apollo 6
Speaker: Natalia Bailey
Thinking about using alternative assessment in mathematics? This presentation demonstrates lessons learned from using poetry and narrative writing to assess student understanding.

2:00 PM – 2:25 PM
Improving Teacher Experiences by Developing , Soft Skills in the Classroom
Location: Apollo 7
Speaker: Brian Evans
We will discuss supporting new math teachers in using ,soft skills, to support student learning.

2:30 PM – 2:50 PM
Preparing Teachers to Game the Educational System: A Scoping Review
Location: Apollo 4
Speakers: Eric Rivera Rodriguez, Andre Thomas
This study examines literature surrounding the relationship of teacher professional development on implementing and using educational video games in a mathematics curriculum and student outcomes.

2:30 PM – 2:50 PM

Textbook Exemplification and Legitimations For Algebraic Fractions

Location: Apollo 5

Speakers: Jessie Store, Davie Store

Using the Mathematics Discourse in Instructional Analytic Framework for Textbooks, this report focuses on examples to analyze the structure and legitimations of algebraic fraction concepts.

2:30 PM – 2:50 PM

History of Mathematics in the Classroom: A Focus on Cultures

Location: Apollo 6

Speaker: Brian Evans

A brief overview of math history through various cultural contributions to generate ideas for using math history to motivate students.

2:30 PM – 2:50 PM

Research Writing for Publications, Tenure, Promotion, Grants, and Enjoyment

Location: Apollo 7

Speaker: Alan Zollman

This session is to mentor RCML member in writing for tenure, promotion, publications; budgeting time; getting a support group; & enjoying the career.

Breakout Session 5

3:00 PM – 3:50 PM

Changing the Face of Applications in Calculus

Location: Apollo 1

Speaker: Sharon Sledge

Investigate how the use of 3D printing for active learning instruction can help students better understand applications such as optimization and volumes of revolution.

3:00 PM – 3:50 PM

Black Epistemologies, Black Language, and Black Children's Math Education

Location: Apollo 5

Speaker: Nickolaus Ortiz

This session focuses on the role of language in mathematics teaching and learning, and highlights Black Language as an important consideration for engaging Black children.

Founders Toast and Lecture

4:00 PM – 4:20 PM

Founders Toast
Location: Zeus Ballroom

4:30 PM – 5:30 PM
Founders Lecture: Whither Thou Goest—The Future of University-Based Teacher Education
Location: Athena Ballroom/Zeus Ballroom
Speaker: Jon M. Engelhardt, Ph.D.

Saturday, March 4

TIME & SESSION INFORMATION

7:00 AM – 8:00 AM
Continental Breakfast

7:00 AM – 11:00 AM
Registration Table
Location: Apollo Foyer

Breakout Session 6

8:00 AM – 8:50 AM
Connecting Mathematical Concepts to Interpretations of Representations
Location: Apollo 1
Speaker: Kwaku Adu Gyamfi
The session investigates how students, interpretations of mathematical representations affect their ability to connect multiple mathematical representations and integrate mathematical information across representations. In doing so, the session will apply a novel framework to learning, instruc...

8:00 AM – 8:50 AM
Mathematics educator's views of social justice in informal PD
Location: Apollo 3
Speakers: Rose Mbewe, Signe Kastberg
Teachers are the critical link between instruction and increasing student achievement, making it imperative to prepare socially aware mathematics teachers to teach diverse students purposefully..

8:00 AM – 8:25 AM

Mapping Magnitudes in Student's Public Comments in a School Board Meeting

Location: Apollo 5

Speakers: Carlos Nicolas Gómez Marchant, Alexandra R Aguilar, Emma C. Gargroetzi

In this session, we share our mapping mechanism developed to explore students, use of magnitudes during public comments at a school board meeting.

8:00 AM – 8:25 AM

Math Workshop Instructional Model: Investigation of Student Attitudes

Location: Apollo 4

Speaker: Brian Dossey

This one-group, quasi-experimental quantitative study explored the relationship between equitable mathematics instruction and student attitudes towards mathematics. The Attitude Towards Mathematics Inventory framed the approach to measure for students, attitudes and consis...

8:30 AM – 8:50 AM

Teacher's Beliefs as a Tool to Extend the Cognitive Equity Concept

Location: Apollo 6

Speakers: Ana-Maria Haiduc, Rose Mbewe, Signe Kastberg

Cognitive equity has received little attention in recent research. We use teachers, mathematics beliefs to extend cognitive equity beyond race and culture as originally framed.

8:30 AM – 8:50 AM

Developing Mathematics Teachers' Pedagogical Design Capacity

Location: Apollo 5

Speakers: Hope Marchionda, Nick Fortune, Sarah Hartman

We will share results from a pilot study designed to address teachers' underdeveloped pedagogical design capacity through a professional development.

8:30 AM – 8:55 AM

Collaborative Mathematics Research Partnerships: Towards Lines of Inquiry

Location: Apollo 4

Speakers: Jamaal Young, Megan Che, Colleen Eddy, Tina Mitchell, Trena Wilkerson

Join the conversation about four emergent lines of inquiry for collaborative partnerships in mathematics education.

Breakout Session 7

9:00 AM – 9:50 AM

Supporting Elementary PST's Analysis of Student's Mathematical Thinking

Location: Apollo 1

Speakers: Andria Disney, Nicole Gearing

Learn about supports used in a math methods course to help PSTs analyze elementary students' mathematical thinking using a strengths-based approach.

9:00 AM – 9:25 AM

Adventures in a Developing Mathematics Teacher Residency

Location: Apollo 2

Speakers: Ryan Fox, Jenny DeHart, Qiana Appleton, Darcie Finch

9:00 AM – 9:25 AM

Learning Together: Team-Based learning in Secondary Mathematics Education

Location: Apollo 4

Speakers: Miriam Sanders, Hannah Hart, Karen Rambo-Hernandez

This presentation provides an examination of Michaelsen and Sweet's (2011) team-based learning approach and a discussion of practical considerations for implementation in secondary mathematics settings.

9:00 AM – 9:25 AM

Performance Orientations in High School: A Critical Inquiry.

Location: Apollo 5

Speaker: Kenneth Butler

This is a qualitative analysis from an administration of the Motivation for Mathematics Abbreviated Instrument (MMAI) to 168 urban high school students. Some data reveal a strong negative reaction to performance orientations by highly motivated students. This aligns with research suggesting valui...

9:30 AM – 9:50 AM

Not What We Expected to Learn

Location: Apollo 5

Speakers: Ryan Fox, Huntir Bass

We will share our continued experiences growing as a teacher and student, focusing on surprising and unexpected teaching opportunities.

Breakout Session 8

10:00 AM – 10:50 AM

Productive Struggle, Persistence, and Perseverance

Location: Apollo 1

Speakers: Lucas Foster, Karl Michael Kruczek

Learning mathematics can be a struggle. Sometimes, a student will experience multiple failures before enjoying a success. The idea of productive struggle is that the student persist throughout the process with creativity and determination until a solution presents it...

10:00 AM – 10:25 AM

PSTs Using Culturally Relevant Math Tasks: Framework to Critique Learning

Location: Apollo 6

Speakers: Dittika Gupta, Alesia Mickle Moldavan

This study shares design, implementation, and a framework critiquing preservice teachers' design of culturally relevant math tasks to inform teacher preparation.

10:30 AM – 10:50 AM

Everyday and Mathematics Language in Middle School Mathematics

Location: Apollo 6

Speaker: Maria Eloisa Nuguid

I suggest that students use everyday and conventional mathematics language in concert with actions to support their meaning making during mathematical problem solving.

Lunch and Closing Slide Show

11:00 AM – 12:30 PM

Lunch and Closing Slide Show

Location: Apollo Foyer

Index of Presenters

Listed: First Name, Last Name, Email

	Name	Email	Affiliation
1	Alan Zollman	alanzoll@iu.edu	Indiana University Southeast
2	Alesia Mickle Moldavan		Georgia Southern University
3	Alexandra R Aguilar	a.aguilar@utexas.edu	The University of Texas at Austin
4	Amy Dunning	ahewi2@uis.edu	University of Illinois Springfield
5	Amy Rae Johnson	arjohnson@utexas.edu	University of Texas at Austin
6	Amy Ray	aer066@shsu.edu	Sam Houston State University
7	Ana-Maria Haiduc	ahaiduc@purdue.edu	Purdue West Lafayette
8	Andre Thomas	manink@arch.tamu.edu	Texas A&M University
9	Andrew Goodman	andrew.goodman@uvu.edu	Utah Valley University
10	Andria Disney	andria.disney@uvu.edu	Utah Valley University
11	Ashley Johnson	ajohnson289@sycamores.indstate.edu	Indiana State University
12	Ayse Ozturk	ozturk.25@osu.edu	The Ohio State University, Newark
13	Babette M. Benken	babette.benken@csulb.edu	California State University, Long Beach
14	Ben Lawson	btlawso@bgsu.edu	Bowling Green State University
15	Beth Cory	blc006@shsu.edu	Sam Houston State University
16	Brent Jackson	bjackson@msu.edu	Michigan State University

17	Brian Dossey	brian_dossey1@alumni.baylor.edu	Baylor University
18	Brian Evans	bevans@pace.edu	Pace University
19	Byungeun Pak	b.pak@utahtech.edu	Utah Tech University
20	Carlos Nicolas Gómez Marchant	nico.gomez@utexas.edu	The University of Texas at Austin
21	Chandel Burgess	chandelburgess@utexas.edu	University of Texas at Austin
22	Charity Cayton	caytonc@ecu.edu	East Carolina University
23	Christine Austin	causti17@kent.edu	Kent State University
24	Christopher Fornaro	chrisfornaro@gmail.com	Drexel University
25	Cnnor Goodwin	connor.goodwin@indstate.edu	Indiana State University
26	Colleen Eddy	colleen.eddy@unt.edu	University of North Texas
27	Courtney Baker	cbaker@gmu.edu	George Mason University
28	Courtney Fox	fox.courtney13@gmail.com	Cincinnati Public Schools and University of Cincinnati
29	Dana Cox	dana.cox@miamioh.edu	Miami University
30	Dara Bright	darabright0409@gmail.com	Drexel University
31	Darcie Finch	darcie.finch@belmont.edu	Belmont University
32	Davie Store	daviestore@kentisd.org	Kent Intermediate School District, Michigan
33	Dillon Miller	dillon.miller@sjcd.edu	San Jacinto College
34	Dinah Gause	dvgause@aggies.ncat.edu	North Carolina A&T State Univeristy
35	Dittika Gupta	dittika.gupta@msutexas.edu	Midwestern State University
36	Emma Bullock	ebullock@shsu.edu	Sam Houston State University
37	Emma C. Gargroetzi	egargroetzi@austin.utexas.edu	The University of Texas at Austin
38	Eric Rivera Rodriguez	eriverarodz@tamu.edu	Texas A&M - TLAC
39	Erick Herrera	eherrera2@sycamores.indstate.edu	Indiana State University
40	Erin Krupa	eekrupa@ncsu.edu	North Carolina State University
41	Erin Smith	erin.smith@unlv.edu	University of Nevada Las Vegas
42	Eva Thanheiser	evat@pdx.edu	Portland State University
43	Francis (Skip) Fennell	ffennell@mcdaniel.edu	McDaniel College
44	Gabriel Matney	gmatney@bgsu.edu	Bowling Green State University
45	Gerardo Sanchez Gutierrez	gerardo.sanchez@utexas.edu	University of Texas at Austin
46	Hannah Hart	hannah.hart10@tamu.edu	Texas A&M University
47	Holly Pinter	hhpinter@wcu.edu	Western Carolina University
48	Hope Marchionda	hope.marchionda@wku.edu	Western Kentucky University
49	Huntir Bass	huntir.bass@knights.ucf.edu	University of Central Florida
50	Ja'Corie Maxwell	jacorie.maxwell@ou.edu	University of Oklahoma
51	Jacob Martin	jacob.martin14@okstate.edu	Oklahoma State University
52	Jamaal Young	jamaal.young@tamu.edu	Texas A&M University
53	Jared Webb	jnwebb@ncat.edu	North Carolina A&T State Univeristy
54	Jennifer Cribbs	jennifer.cribbs@okstate.edu	Oklahoma State University

55	Jenny DeHart	jenny.dehart@belmont.edu	Belmont University
56	Jessica Showell	jshowell1@student.gsu.edu	Georgia State University
57	Jessie Store	storejc@alma.edu	Alma College, Michigan
58	Jillian Cavanna	cavanna@hartford.edu	University of Hartford
59	Jodie Cahill	cahillj@bgsu.edu	Bowling Green State University
60	John Ezaki	jezaki@usc.edu	University of Southern California
61	Jon M. Engelhardt, Ph.D.		Bayor University
62	Jonathan Bostic	bosticj@bgsu.edu	Bowling Green State University
63	Joseph Raymond Tedeschi	joey_tedeschi1@baylor.edu	Baylor University
64	Juliana Utley	juliana.utley@okstate.edu	Oklahoma State University
65	Julie Herron	jherron@augusta.edu	Augusta University
66	Kaileigh Roan	kroan85@email.tamu.edu	Texas A&M University
67	Kaitlyn Solymosi	kaitlynsolymosi@gmail.com	Bowling Green State University
68	Karen C. Enderle	kenderl@g.clemson.edu	Clemson University
69	Karen Rambo-Hernandez	rambohernandez@tamu.edu	Texas A&M University
70	Karen Zwanch	karen.zwanch@okstate.edu	Oklahoma State University
71	Karl Kosko	kkosko1@kent.edu	Kent State University
72	Karl Michael Kruczek	kruczek@nsuok.edu	Northeastern State University
73	Kate Fan	yiyunfanfan@gmail.com	Drexel University
74	Kate Raymond	kate.m.raymond@ou.edu	University of Oklahoma
75	Katherine Sammon		Clevaland State
76	Katrina Villalobos	knvillalobos@miners.utep.edu	University of Texas at El Paso
77	Keith Damschroder	kdamsch@bgsu.edu	Bowling Green State University
78	Kelly Baum-Sehon	kabaum-sehon@okcps.org	OKCPS
79	Kendra Cash	kendra_cash1@baylor.edu	Baylor University
80	Kenneth Butler	kbutler2@udayton.edu	University of Dayton
81	Kristian Edosomwan	k.edosomwan@tamu.edu	Texas A&M University
82	Kristin Koskey	kk3436@drexel.edu	Drexel University
83	Kwaku Adu Gyamfi	kayjii@yahoo.com	East Carolina University
84	Lauren Raven	laraven@aggies.ncat.edu	North Carolina A&T State Univeristy
85	Laurie James	ljames7@hawaii.edu	UH-West Oahu
86	Leah Frazee	frazee@ccsu.edu	Central Connecticut State University
87	Lianne Jones	lianne_jones@baylor.edu	Baylor University
88	Lucas Foster	fosterlb@nsuok.edu	Northeastern State University
89	Margret Hjalmarson	mhjalmar@nsf.gov	National Science Foundation
90	Maria Eloisa Nuguid	mnuguid@purdue.edu	Purdue University
91	Mary B. Swarthout	swarthout@shsu.edu	The STEM Center at SHSU
92	Maryam Zolfaghari	mzolfagh@kent.edu	Kent State University

93	Meg Botello	mbotello@udel.edu	University of Delaware
94	Megan Che	sche@g.clemson.edu	Clemson University
95	Melanie Autin	melanie.autin@wku.edu	Western Kentucky University
96	Micah Stohlmann	micah.stohlmann@unlv.edu	University of Nevada, Las Vegas
97	Micayla Gooden	good7509@tamu.edu	Texas A&M University
98	Michael S. Rugh	michael.rugh@tamu.edu	Texas A&M University
99	Miriam Sanders	mmsanders@tamu.edu	Texas A&M University
100	Mourat Tchoshanov	mouratt@utep.edu	UT-El Paso
101	Natalia Bailey	nbailey@ucmo.edu	University of Central Missouri
102	Nesrin Sahin	nesrins@uca.edu	University of Central Arkansas
103	Nick Fortune	nicholas.fortune@wku.edu	Western Kentucky University
104	Nickolaus Ortiz	nortiz1@gsu.edu	Georgia State University
105	Nicole Gearing	nicole.gearing@uvu.edu	Utah Valley University
106	Patrick Wachira	p.wachira@csuohio.edu	Cleveland state university
107	Qiana Appleton	qiana.appleton@belmont.edu	Belmont University
108	Renee Wakamatsu	rwakamatsu@alpinedistrict.org	Alpine School District
109	Robert "Alex" Smith	alex.smith@unlv.edu	University of Nevada Las Vegas
110	Rose Mbewe	rmbewe@purdue.edu	Purdue University
111	Ryan Fox	ryan.fox@belmont.edu	Belmont University
112	Sadia Mir	smir@vcu.edu	Virginia Commonwealth University, Qatar
113	Sara Vera	s_v254@tamu.edu	Texas A&M University
114	Sarah Hartman	sarah.hartman396@topper.wku.edu	Western Kentucky University
115	Sarah Powell	srpowell@utexas.edu	University of Texas
116	Sarah Pratt	sarahs94@gmail.com	Baylor University
117	Sharon Sledge	sharon.sledge@sjcd.edu	San Jacinto College
118	Sheila Tabanli	sheila.tabanli@rutgers.edu	Rutgers
119	Signe Kastberg	skastber@purdue.edu	Purdue West Lafayette
120	Stacey Michie	stacey.denum@okstate.edu	Oklahoma State University
121	Sue Brown	browns@uhcl.edu	University of Houston-Clear Lake
122	Summer Bateiha	srbateiha@vcu.edu	Virginia Commonwealth University, Qatar
123	Suzanne Harper	suzanne.harper@miamioh.edu	
124	Tamar Avineri	avineri@ncssm.edu	North Carolina School
125	Timothy Folger	tdfolge@bgsu.edu	Bowling Green State University
126	Tina Mitchell	drtinamitchell@gmail.com	Delaware State University
127	Tony Thompson	thompsonan@ecu.edu	East Carolina University
128	Tracey Howell	howellth@appstate.edu	Appalachian State University
129	Trena Wilkerson	trena_wilkerson@baylor.edu	Baylor University
130	Trina Palmer	palmerk@appstate.edu	Appalachian State University

131	William Brandt	wbrandt@bgsu.edu	Bowling Green State University
132	Yeil Kwon	ykwon1@uca.edu	University of Central Arkansas
133	Yi-Yin (Winnie) Ko	winnie.ko@indstate.edu	Indiana State University

Research Council on Mathematics
50th Annual Conference
March 2 – 4, 2023