Post-Conference Evaluation Report

SMU | Annette Caldwell Simmons School of Education & Human Development

Research in Mathematics Education

Research in Mathematics Education (RME) was established in 2011 with an infrastructure grant from the Meadows Foundation. RME's mission is to conduct high-quality research in mathematics education, to cultivate positive change by educating teachers and administrators about evidence-based practices and systems, and to support mathematics achievement through academic growth and development of all students. Under the direction of Dr. Leanne Ketterlin-Geller, research funding has grown to over $13M in just seven years, and we have directly and indirectly impacted over 850 school districts, more than 310,000 Texas teachers, and nearly 1 million students in Texas elementary and middle schools.

We are committed to engaging in research and outreach that will make a significant and lasting difference at the student, classroom, district, state and national levels. RME supports mathematics education by (a) impacting students through projects involving teachers, parents, and policymakers, (b) empowering teachers and administrators through our conference and professional development opportunities, and (c) connecting researchers within the local, state, national, and international communities by sharing our research and intervention accomplishments.

History

The first RME Research-to-Practice Conference was held in 2012 to serve North Texas teachers and administrators with a mathematics conference that provided robust, interactive professional development on relevant and pressing issues in the education community. And to be responsive to the goals of RME to support the needs of educators in Dallas and the greater North Texas area, it was important that the conference be offered at no-cost to the attendees. The 2012 conference brought in 144 educators.

Growth

With each year, the size of the conference grew. In year two, over 200 educators registered. By 2014, we had 250 registrants, and implemented our first wait-list capped at 50 people. The RME team reached out to registrants as the weeks closed in on the conference date to determine if we could expand the wait list. We had minimal response to our registration confirmations and anticipated being at capacity. Despite our efforts, we had a no-show rate of 18 percent. 2015 brought a no-show rate of 30%.

In 2016, we had our most challenging registration year to date. Continuing the trend from 2014-15, when we opened registration in November of that year, we reached our 350-person maximum capacity in just four days. In a matter of weeks we had a 100-person wait list. However, when the day of the conference arrived, 115 registrants did not attend. We were failing our wait-listed constituents; educators who, through a matter of a four-day window, simply did not register in time. We hypothesized that since the attendees had not paid a registration fee, there was not incentive to attend. Even though we have been committed to providing a no-cost professional development opportunity to educators in Dallas and North Texas, we considered charging a nominal registration fee in an attempt to improve the attendance rate.

In 2017, based on feedback from our *Partners in Practice* committee, we implemented a $35 ticket fee, along with generous scholarship opportunities. This move was successful, and in 2017 338 educators checked in and were in attendance, dropping our no-show rate to **less than 4 percent**, compared to 33 percent the year prior. Following this model in 2018, we again achieved our goal of 316 attendees (capping registration at 325 due to space issues and not exceeding fire marshal regulations), and we achieved a no-show rate of 15 percent.

Partners in Practice (PiP)

In the spring of 2016 the RME team decided to seek a collaborative group of educators from diverse backgrounds and districts to form a committee of like-minded individuals who could help our team be forward-thinking and support future conferences. Specifically we asked for their expertise to:

- Develop content and topical theme ideas through their lens as a Texas educator
- Identify potential speakers to support the content and theme of the conference
- Suggest improvements needed to the structure of the day

The success of the committee proved invaluable, and RME's 2017 – 2018 *PiP* committee consisted of educators from varied backgrounds and districts:

Sharri Zachary is an Assistant Principal in Dallas ISD, was an RME Conference speaker in 2012 and 2013 and has extensive experience in the classroom as both a teacher and instructional coach at Garland ISD and Dallas ISD, specifically assisting teachers with curriculum and instructional strategies and student engagement. She has been involved in various curriculum and assessment writing projects, and in 2017 received RME's *Impact on Teaching & Learning* award.

Meg Shull has taught in public elementary schools for over 20 years in Grand Prairie, Dallas, and Richardson ISDs. The majority of her career has been with third grade, and she has a particular passion for teaching elementary mathematics. She also has specific experience teaching talented and gifted. In 2015, she was nominated by her school as Teacher of the Year. She received the Superior Teaching Achievement (STARS) teacher award for Richardson ISD. Each year, only ten teachers are chosen and honored by the district.

Dawna Duke is the Primary Years Program Dean for Uplift Preparatory Academy. She has worked as an elementary math, science, and special education teacher in both large urban districts as well as international schools. She served as an instructional coach before deciding to pursue her doctorate in education. She is a certified principal and skilled in instructional leadership, leading adult learning, change management, and innovation/design thinking.

Bruce Boehne is a 30-year teaching veteran specifically in both math and science. He has given professional development workshops for educators at the national, state, and regional levels and was selected by the National Council of Teachers of Mathematics to attend the International Conference on Mathematics Education in Tokyo, Japan. He is also a QuarkNet

Teaching Fellow in Physics and a STAR teacher with UT Southwestern. Bruce has attended the RME conference every year since its inception.

Jill Speckert is currently the Director of Elementary Mathematics for Carrollton-Farmers Branch ISD. She has worked as an elementary teacher, elementary math specialist, and as a middle school math specialist. Jill has served on item writing teams for RME.

Debbie Perry is the Mathematics Coordinator at Midway ISD. She has been in education for 25 years and has taught mathematics at the elementary, middle, high school, and higher education levels. As the mathematics coordinator she implements training initiatives that engage and empower teachers to deepen their content knowledge in order to make wise decisions about instruction. She is an executive board member of CAMT, TASM, and CTCTM.

The *Partners in Practice* Committee met twice in 2017; first in the summer and second, in the fall of 2017. The purpose of these meetings was threefold: (1) to garner from this diverse group of seasoned educators a discussion around content and theme ideas that would meet the needs of current educators in the field, (2) to brainstorm speakers and panelists to support these ideas, and (3) to receive relevant feedback on the structure and logistics of the day; what worked and areas that needed improvement.

The first meeting of the 2017 – 2018 committee was held in August of 2017. The RME team had consolidated the previous year's feedback and highlighted four potential themes including: The Problem-Solving Classroom, Understanding the Math Process Standards, Engaging Diverse Learners, and Exploring Numerical Fluency. The RME team identified "The Problem-Solving Classroom" as the best theme for the 2017 conference, based on evaluation data and proposed this topic to the PiP team. RME's director, Leanne Ketterlin Geller proceeded to lead a discussion that broke down how this topic could be further described in order to support conference attendees. Specifically she asked school leaders on the *PiP* committee "What do your teachers struggle with around problem solving?" and asked the teachers on the committee, "What do your students struggle with around problem solving?"

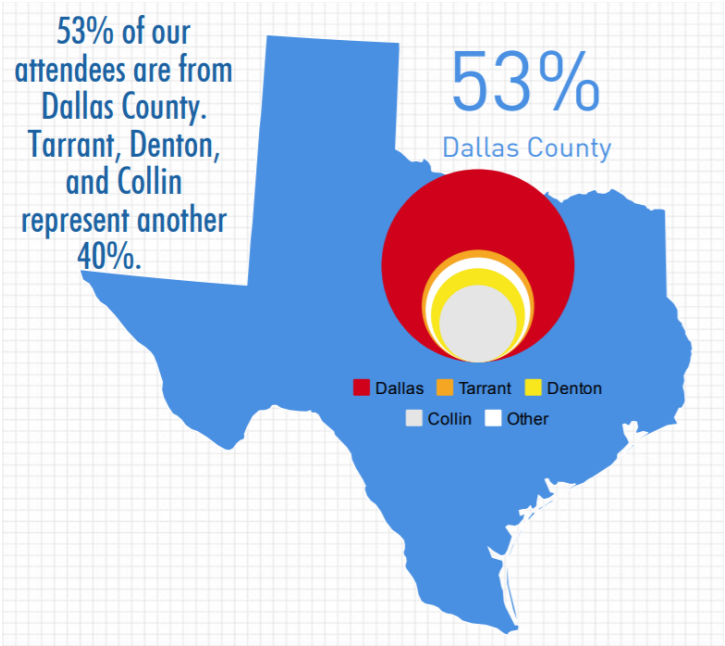
The leaders identified rich mathematical tasks, evaluating and supporting teachers to develop a desired classroom culture around problem solving, and creating a mind-shift around problem solving where teachers understand the purpose and reason for problem solving as crucial sub-topics for this theme. Similarly, teachers recognized that students need to develop an iterative process around problem solving that encourages failure (not getting the correct answer the first time), how to ask questions, how to make connections between multiple representations, and how to be risk-takers. The teachers also identified working with diverse learners as a challenge that could be addressed, and building a culture of competent and confident problem solvers.

The RME team considered this feedback and over the next few months identified breakout topics, general sessions, and potential speakers that could support *The Power of Problem-Solving* as the official conference theme.

Other logistics that resulted from this meeting were to continue to charge a small admission fee for attendees, and to add tickets to breakout sessions to limit overcrowding in spaces with limited capacity. The committee also encouraged keeping the keynote and luncheon separate to facilitate lunch table discussions, and to have both an opening and closing all-audience session, thus eliminating the panel historically presented at either the open or close of the day.

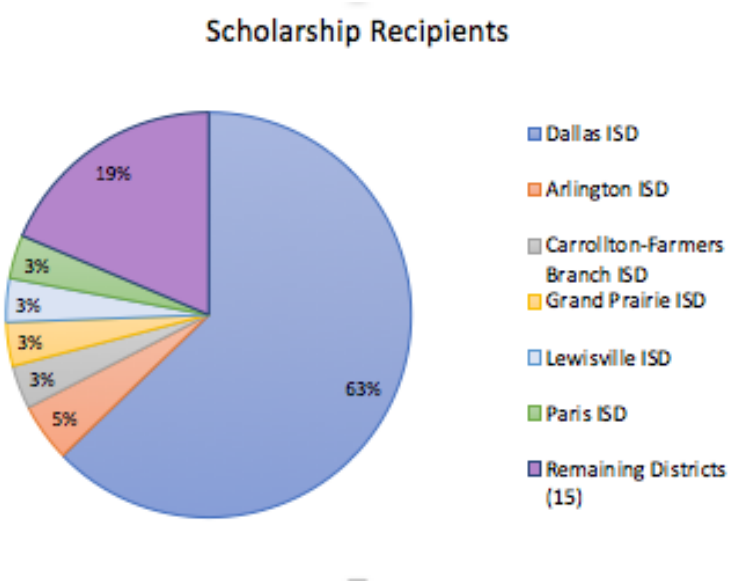
The *Partners in Practice* committee members were each guaranteed a table for eight educators, free of charge, as part of their commitment to the success of group.

2018 Conference: The Power of Problem-Solving



On Friday, February 16, 2018, 316 mathematics educators and researchers attended the 7th annual Research in Mathematics Education Conference at SMU. They joined us for a day of professional development to learn about the power of problem-solving and how to integrate this into their K-8 classroom in a meaningful way. This included 171 teachers and 108 school and instructional leaders, as well as 44 colleagues from other industry and non-profit organizations. Over 53% of the attendees were from Dallas County, with Tarrant, Denton, and Collin counties representing another 40%. Of these attendees, a significant portion were provided scholarships for attending that required an application process and approval from their direct supervisor in order to attend.

Eighty-six attendees received scholarships with 63 percent of those recipients being from Dallas ISD, followed by Arlington, Grand Prairie, Carrollton, Lewisville, and Paris independent school districts. The remaining 15 districts received two or less scholarship awardees and accounted for the remaining 19 percent.



The 2018 conference was generously funded by The Meadows Foundation, Istation, Reasoning Mind, and the Hoglund Foundation.

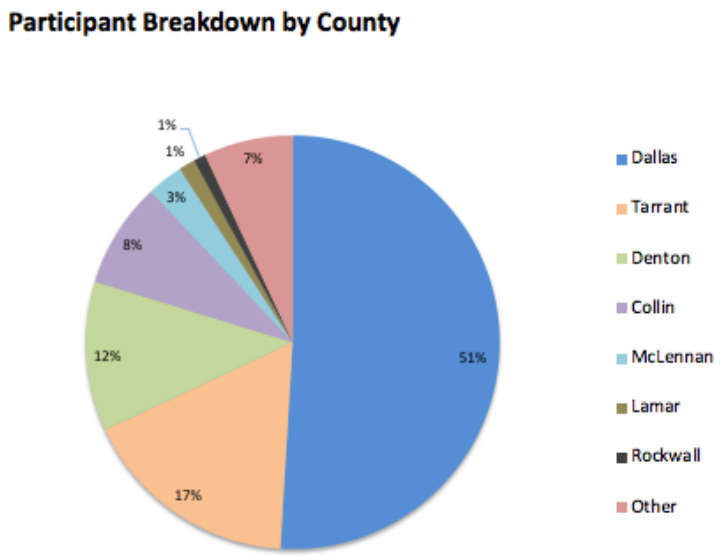
SECTION I: PARTICIPANT BACKGROUND

Twelve questions relate to the background of the participant:

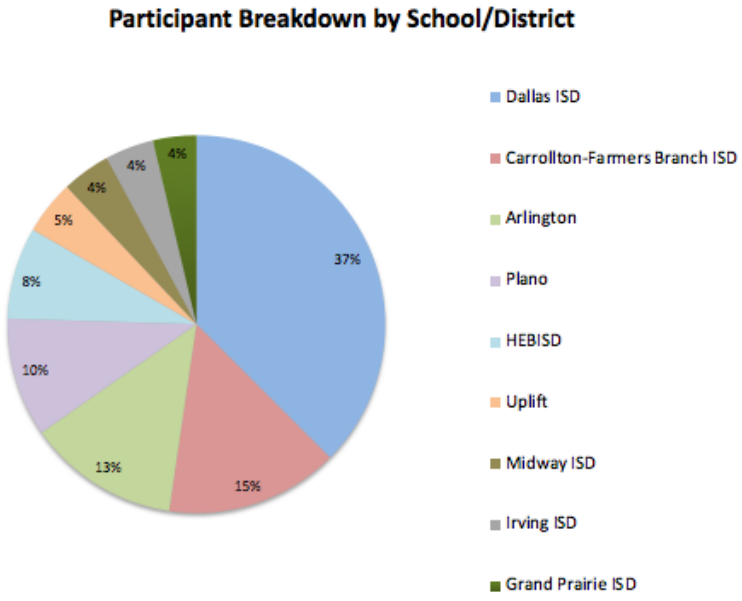
1) Name:
2) What county do you work in?
3) What district or company are you with?
4) What is your role in education?
5) How many students do you currently impact?
6) What grade(s) do you currently teach?
7) How many years have you been in education?
8) What is your level of higher education (Bachelor's/Master's, Ph.D./Ed.d.)?
9) Have you attended the RME conference in the past? If so, which years? (Select all that apply)
10) Approximately how many conferences on math education do you attend annually?
11) If you have attended the conference in the past, how has it changed or impacted your practice?
12) How did you hear about the conference?

Through an online platform, 316 people were able to register within RME's capacity, and an additional 161 were added to a waitlist. Most registrants work in schools.

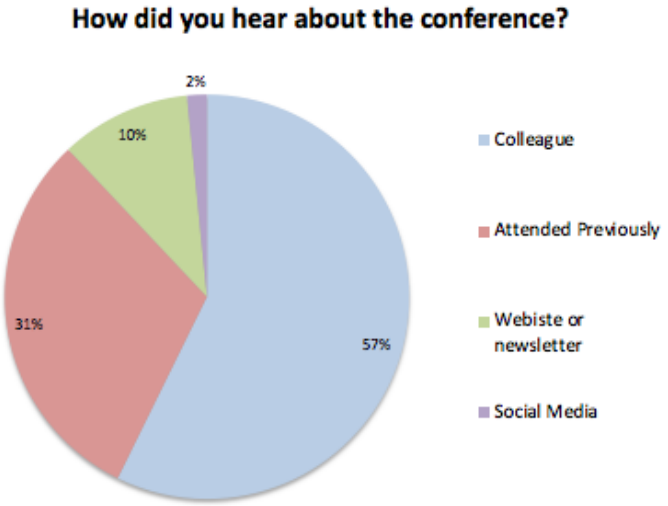
Participants registered from all over North Texas. The majority of participants came from Dallas County (51%) and Tarrant County (17%), and others came from Denton, Collin, McLennan, Lamar and Rockwall counties.



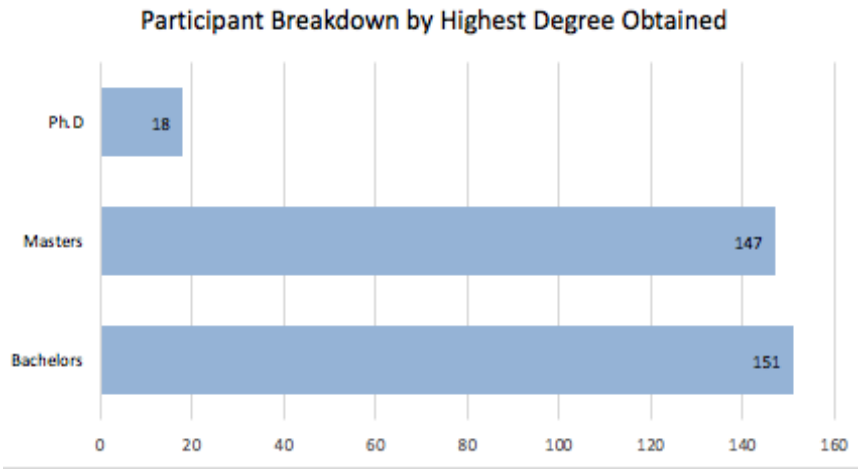
Fifty-nine school districts and organizations were represented at this year's conference.



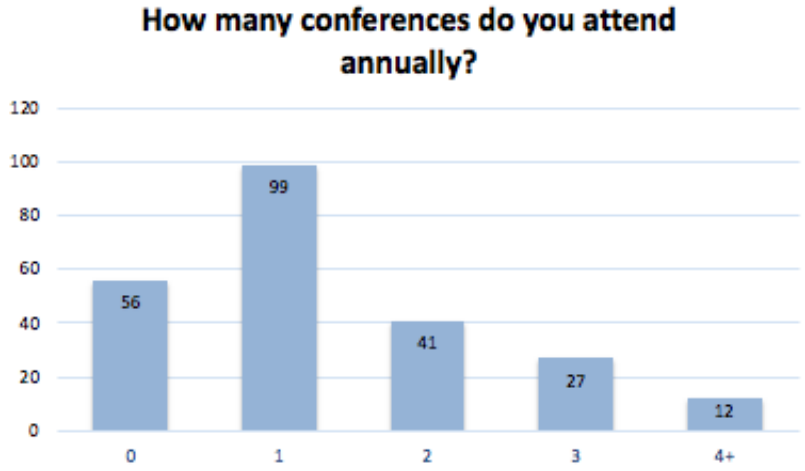
When asked during registration how the participant heard about the RME Research-to-Practice Conference, 97 registrants (31%) responded that they had attended in years' past, 181 registrants (57%) heard from a colleague, 33 registrants (10%) heard through our website and/or newsletter.



Attendees were asked to provide their educational background, of which 47 percent of registrants indicated that they have a Master's Degree.



Sixty percent of respondents indicated they attend **only one or two conferences** of this type annually. For many respondents, this was their first conference to attend as a mathematics educator.



SECTION II: SESSION SUMMARIES

Opening Session: Developing Problem-Solvers and NOT Just Rule Followers

Presented by Dr. Kristopher J. Childs, Assistant Professor, STEM Education,Texas Tech University

Dr. Kristopher J. Childs, of Texas Tech University, had three primary goals for the participants of the opening session of the RME Research-to-Practice Conference. Educators were tasked with evolving their instructional approaches to meet the needs of students in today's rapidly evolving and technologically advanced society. First, he wanted the participants to make sense of the lesson design process; second, to develop an understanding of high cognitive demand tasks, and finally to arm participants with the necessary steps on how to identify a useful instructional model.

To efficiently achieve his goals, Dr. Childs shared the six stages of effective mathematics instruction:

- Standard
- Student learning outcome
- Task selection
- Task implementation
- Task discourse
- Assessment

Once he identified the six stages, he shared that, "while every state has standards of teaching and learning, participants should take the 'teach' from 'teacher' and become facilitators." The 'catch and release' model currently used by teachers, is not adequate as it emphasizes teachers. Instead, teachers should be made aware that students come with their own experiences and as facilitators, teachers can help students reason mathematically using high-level tasks.

Dr. Childs stated the importance of high- level tasks that require problem-solving, and not just procedural skills. However, the goal is never to frustrate the child. Dr. Childs quoted Dr. Martin

Luther King Jr., "The function of education is to teach one to think intensively and to think critically."

Dr. Childs closed with *Four Critical Questions of Learning*

(DuFour, DuFour, Eaker, Many, & Mattos, 2016)

1. What do we want all students to know and be able to do?

2. How will we know if they know it?

3. How will we respond if they don't do it?

4. How will we react if they do it?

If teachers focus on answering these critical questions, then we are cultivating students to becoming problem solvers and not rule followers.

Morning Breakout 1 – Scaffolding Student Sense-Making with Numberless Word Problems

Presented by Brian Bushart, Elementary Mathematics Curriculum Coordinator, Round Rock ISD

Mr. Bushart's presentation focused on teachers' understanding the use of numberless word problems to foster understanding of the underlying structures, helping students become more proficient. This instructional strategy scaffolds student understanding of the CGI problem types, and encourages sense making prior to computation. According to recent data, there is a disconnect when students are faced with answering these types of items on standardized testing, compared to their experiences in the real world.

Bushart focused on providing more contextual evidence for students when they engage in problem solving. Using a method that centers the attention of the students on the details of a story *without* numbers, he shows how he ask students to fit possible numbers to the story. Bushart asks for the class to come to a consensus, using choices discussed to solve the problem. In so doing, he provides students flexible opportunities to think about the numbers within the context of a rich detailed story. Bushart reiterated that the focus of the technique was to bridge a gap that would allow students to understand the problem and correctly use the quantities in the problem by understanding the details.

There were rich examples using actual teacher and student videos to provide the narrative for the session attendees. Bushart used a Kindergarten teacher and classroom footage, elaborated on how the tasks were set up for the teacher and how the teacher adjusted those tasks to fit her needs and those of her students. Footage focused on students' interpretation of problems after the numberless word problems were used in class. The material showed how students focused on the details of a story without numbers and flexible number suggestions allowed for students to dig deep into the context of the problem. The students not only showed improved flexibility with their approaches and strategies when solving the problems, but also improved comprehension useful to interpret the information needed in story rich problems.

Morning Breakout 2 – Deepening Learning with Meaningful Tasks (Grades 3-5)

Presented by: Debbie Perry, District Mathematics Coordinator, Midway ISD

Ms. Perry, District Mathematics Coordinator from Midway ISD, shared strategies for utilizing mathematics performance tasks in grades 3-5 to increase students' mathematical reasoning and conceptual understanding. Over the last several years, Perry led Midway ISD in the process of developing and implementing districtwide performance tasks. She shared the successes and lessons learned during this process. During her breakout, she focused on three main goals for attendees to learn from the session:

- Describing the rational for performance tasks
- Examining the components of performance tasks
- Engaging in calibration and anchoring activities

Perry described performance tasks as an effective tool for identifying students' conceptual understanding. She defined performance tasks as any learning activity or assessment that asks students to perform or demonstrate their knowledge, understanding, and proficiency. Performance tasks result in a product or performance that provides evidence of learning. The tasks developed by Perry with Midway ISD focus on five characteristics including:

- Focus on student reasoning
- Multiple entry points (i.e., students start solving using different information available in the problem)
- Varied solution strategies (i.e., students can solve the problem in multiple ways)
- Active inquiry and exploration
- High cognitive demand

Perry shared several performance tasks, each of which highlighted one of the five characteristics. She emphasizes that tasks should be implemented with a clear purpose; usually as an activity or assessment. Teachers in the breakout session shared their thinking and anticipated student thinking as they solved several performance tasks.

Perry shared the development of the performance task scoring rubric, which is used in Midway ISD to score students' performance task responses. In Midway ISD, teachers select a common task (e.g., for the grade level), implement the task in their classrooms, engage in calibration and anchoring, score the tasks, return the tasks to students, and allow them to revise and resubmit.

The calibration and anchoring process ensures that teachers assign scores to student work in consistent ways. During the breakout, teachers engaged in a calibration and anchoring session during which they analyzed and scored student responses using the rubric. Teachers held up a colored card representing the score they assigned the task. They shared their reasoning for assigning the scores and described the revisions they would hope to see from students. Through this discussion, teachers collectively agreed on one score for each student work sample. Perry explain that scored samples subsequently serve as an anchor for the assigned scores.

Perry shared several lessons learned through the development and implementation of performance tasks in Midway ISD. For example, she warned attendees to avoid restricting top scores to flawless student work and instead to focus on depth of reasoning and conceptual understanding. She also warned teachers to be careful not to become overly involved as students solve performance tasks. She explained that it is our instinct to want to help students, but she encouraged attendees to “put your hands in your pocket” and avoid doing the thinking for students.

In summary, the breakout session provided teachers with several mathematics performance tasks which they could immediately implement in their classrooms. Perry also ensured that teachers had the tools necessary to score student work in consistent ways with an emphasis on developing students’ reasoning skills and conceptual understanding.

Morning Breakout 3 – The Problem with Problem-Solving (Grades 6-8)

Presented by: Kay Neuse, Department Chair and 8th Grade Mathematics, Prince of Peace Catholic School, Dallas.

Ms. Neuse presented on the problem with problem-solving. Neuse discussed the struggles teachers face when teaching problem-solving to students. Many students feel overwhelmed when it comes to complex math problems, and she reiterated why it is important for teachers to focus on the process of problem solving when using word problems, puzzle problems, and other higher-level math problems.

Specifically, Neuse highlighted the following challenges educators face:

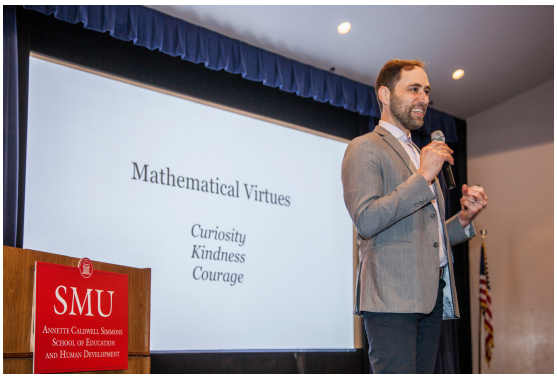
- We tend to teach strategies that are not really good strategies
- We think word problems are the best way to teach problem-solving
- We confuse exercises and practice with problem-solving
- We focus too much on solutions rather than process
- We do not teach perseverance
- We are uncomfortable with failure
- We don't talk math

Neuse brought an assortment of puzzle problems for the audience to work through together throughout her presentation. The activities she provided demonstrated the various ways we approach word problems. Focusing on the process of problem solving rather than the solution will help develop students' understanding and mastery of problem-solving. Teaching students to be okay with failure will help them become successful problem solvers. Kay presented practices to create a problem-solving culture in the classroom. Problem-solving has to be sustained and repeated in order for students to strategize to solve problems.

Keynote Presentation: Making and Breaking Conjectures – Supercharging Mathematical Thinking in Your Classroom

Presented by Dr. Dan Finkel, Founder at Math for Love

Dr. Finkel presented on how to create a classroom culture that promotes productive struggle, healthy debate, and real understanding. He challenged participants to think about how to encourage students to make conjectures and break those conjectures with counterexamples intended to deepen students' knowledge of mathematics and to foster an environment of courage and curiosity.



This method of problem solving gives students permission to make mistakes and be curious about mathematical ideas they are unsure about. Many students have math phobias or are anxious about learning mathematics because they believe that there are "math people" and that "math people" always know the right answers. Dr. Finkel challenged participants to teach students that mathematics belongs to them and that everyone is a math person.

Central to this structure of problem solving is the promotion of sense-making within mathematics. To illustrate the point that students often do not make sense of mathematical problems, Dr. Finkel showed the video, "How Old is the Shepherd?" This video, by Robert Kaplinsky, showed how 32 eighth-graders responded to the task, "There are 125 sheep and 5 dogs in a flock. How old is the shepherd?" Only 8 out of 32 students made sense of the task and realized that they could not solve the task with the information given. The other 24 students used some type of operation to get an answer. This video illustrated that students see mathematics through the lens of "getting an answer."

To demonstrate how to use conjectures and counterexamples in the classrooms, Dr. Finkel encouraged participants to think through conjectures, such as "All animals have 4 legs" and "When you multiply numbers, you end with bigger numbers than you started with." Participants became like students as they brainstormed counterexamples and revised the conjectures based on those counterexamples. This process promoted discourse and required deep wrestling with mathematical ideas. Dr. Finkel suggested that this method requires courage as one must be open to being wrong. As he illustrated how to use conjectures and counterexamples effectively in the classroom, Dr. Finkel described five principles of extraordinary mathematics teaching:

- Start with a question
- Students need time to struggle
- You are not the answer key
- Say yes to students' ideas
- Play

When students are provided with an environment where they can safely develop conjectures and test out their conjectures, they learn mathematics at a deep level and develop greater sense-making and problem-solving abilities. Dr. Finkel noted that this method of mathematics teaching can teach students and teachers three virtues: curiosity, kindness, and courage.

Afternoon Breakout 1 – Problem-Solving in Math with Bee-Bots: Strategies to Integrate English Learners

Presented by Dr. Diego Roman, Assistant Professor, Southern Methodist Universtiy and Dr. Karla del Rosal, Assistant Professor, Southern Methodist University

The team from Southern Methodist University, including Drs. Diego Roman and Karla del Rosal,

presented their session on how to use Bee-Bots to help English learners with algorithmic learning processes. Roman and del Rosal described the challenges of teaching mathematics to English Learners, including academic, cultural, linguistic and semiotic challenges, and discussed ways that teachers can help students overcome these challenges, and how the use of technology can assist.

Roman and del Rosal noted that teaching mathematics to ELs is difficult, and in order to be successful, teachers need:

- mathematics knowledge and skills
- mathematics pedagogical content knowledge
- skills addressing issues of language and culture.

This often means that teachers who teach mathematics to ELs have *more* work to do, and need *more* professional development.

In small groups, teachers were asked to program Bee-Bots in multiple ways considering prepositions that must be used to direct the Bee-bots. Participants were asked how Bee-Bots can be used to help scaffold discussion and mathematical thinking for English learners, who might have difficulty with the task if their understanding of the English prepositions needed to program the Bee-Bots limited their ability to complete the task. The activity was related back to the mathematical process standards and how these process standards pose challenges for English learners. Follow-up discussions involved how Bee-Bots can be implemented in the classroom as well as challenges of implementation.

Afternoon Breakout 2 – How to Help Students with Mathematics Difficulties Become Expert Problem-Solvers

Presented by Dr. Sarah Powell, Assistant Professor, The University of Texas at Austin

In this session, participants had the opportunity to explore how to support students to become effective problem-solvers. Dr. Powell first explained how ineffective word-problem strategies can cause challenges for students, particularly using incorrect use of key words or operations. She stressed that students must understand key words, but key words should not be directly tied to operations.

Dr. Powell described the following as potential problem solving difficulties: reading problems, understanding vocabulary, identifying relevant information, ignoring irrelevant information, interpreting charts and graphs, identifying appropriate operations, and performing the computation.

She went on to present a word problem and asked the educators in the audience to share:

- How would you teach this problem?
- What do students need to know to solve this problem?
- What might cause difficulty for students?

From this discussion, Dr. Powell shared her top three tenets for effective problem-solving.

1. Don't describe using key words or operations.
2. DO have an attack strategy.
3. DO teach word-problem schemas.

Teachers were then given the opportunity to work through numerous word problems with various strategies. Considerable time was spent on identifying different types of schemas and strategies for different types of problems and how students work best.

Afternoon Breakout 3 – We Teach! We Coach! We Learn! (Campus Instructional Coaches)

Presented by Pam Smith, Mathematics Consultant, Math4All

Ms. Smith discussed the importance of coaching teachers through the problem-solving process, and how this collaborative process drives student involvement and understanding.

Smith prioritizes the following tenets for effective classrooms:

- Building content knowledge + pedagogy to become an effective teacher
- Facilitating the integration of TEKS and Process Standards in the classroom
- Developing Process Standards Categories to include:
    - Problem-Solving
    - Tools/Techniques
    - Communication
    - Relationships/Connections

When problem-solving, it is important to analyze the information, formulate a plan or strategy, determine a solution OR a plan for a solution, and then justify your solution. She also recommended familiarity with manipulatives, technology, and strategies such as mental math, estimation, and number sense. She went on to discuss communication in the classroom, notably around multiple representations, symbolic notations, diagrams, graphs, and language. Finally, she discussed how relationships within numbers and between problems also affects prior knowledge and comfort with the content.

As a coach, she emphasized how an ongoing and honest dialogue with teachers is crucial. Building a relationship with teachers, and understanding how they best receive feedback is important to success as a mathematics coach. She also described how creating a foundation of common language and tools within a school and district will create an ongoing, cohesive environment.

Closing Session: Breaking the Problem-Solving Barrier

Presented by Mary Kemper, Director of Mathematics, Coppell ISD

Ms. Kemper began her session by encouraging teachers to ask themselves, "How am I putting a ceiling on my students' learning?" She emphasized that in order to facilitate students' access to and confidence in mathematics, we [educators] need to remove barriers. Kemper identified five barriers to student access including:

- Language
- Disengagement
- Pre-requisite knowledge
- Limits
- Time

In order to remove these barriers, it is critical that educators advocate for students. She emphasized the need to reach out to other educators for advice using a process she calls *advocate, ask, and adjust*. Educators have a duty to advocate for their students' needs, ask for help, and adjust lessons based on what is best for their students.

Kemper generated a list of mathematics resources by asking for advice from her colleagues using an online tool called *Flipgrid*, which allows participants to submit one-minute videos. Specifically, she asked teachers to think about what resources are available to minimize learning barriers in mathematics. She shared several of these resources on a handout during her session. She received recommendations from distinguished educators including Cathy Yenca (aka Mathy Cathy) of Pennsylvania, Kyle Pearce of Ontario, Robert Kaplinsky of California, Jon Orr of Ontario; Graham Fletcher of Georgia, and Lucy Grimmett of Texas.

Kemper noted several themes across the educators' responses and recommendations. First, several of her colleagues warned that teachers can become barriers to student learning if they do not allow students to think and speak. Kemper emphasized the need for math talk and problem-solving in the classroom. She offered several recommendations to encourage problem-solving, such as giving students the answer to a problem and then asking them to prove if answer is possible.

She encouraged teachers to "let the kids do the math and get out the way." Allowing students to grapple, she said, encourages reasoning, conceptual understanding, and confidence in mathematics. Another strategy to encourage problem-solving was to provide students with problems worth solving. These problems can include "open middle problems", where students

can arrive at the answer in multiple ways. These problems remove barriers and are accessible to students with differing abilities in that they have a “low floor and high ceiling”.

Another strategy to encourage problem-solving was to present a word problem and remove the numbers, which slows down the problem-solving process. Kemper also referred teachers to the learning progressions videos on Mr. Fletcher’s website, which encourage teachers to anticipate the ways in which students will solve problems and identify progressions in learning.

In summary, Kemper encouraged teachers to take one step toward identifying student barriers, advocating for their students, and seeking the resources that would support student access and build student confidence in mathematics. Her session modeled a sense of collegiality and connection across the teaching profession.

RME IMPACT IN LEADERSHIP AWARD

The RME *Impact in Leadership* award was given to Dr. Sharon Benson, Director of Mathematics and Advanced Academics for Education Service Center, Region 4. The criteria for this award are:

- Demonstrated commitment to cultivating the research-to-practice relationship through implementation of systems-level research-based practices and/or contribution to research.
- Demonstrated commitment to supporting students' mathematics achievement through leadership.
- Demonstrated commitment to supporting teachers' professional knowledge of mathematics content and/or evidence-based pedagogical practices.
- Innovative thinking focused on supporting teachers and systems through a change process to improve student outcomes.
- Demonstrated commitment to supporting systems-level implementation of data informed decision-making.

Sharon Benson currently serves as Director of Mathematics and Advanced Academics at the Region 4 Education Service Center (ESC). While at Region 4 ESC, she has led the development of and serves as a master trainer for many statewide professional development offerings including *Mathematics TEKS Connections* (MTC), *Middle School Students in Texas: Algebra Ready* (MSTAR), *Elementary Students in Texas: Algebra Ready* (ESTAR), *Algebra I EOC Success*, *Algebra II EOC Success*, and *Introduction to the Revised TEKS*. Dr. Benson has also served as a member of the Texas Algebra Readiness Initiative, the Commissioner's Math Advisory Council, and assessment committees related to STAAR End-of-Course for Geometry and Algebra II. She is also a contributing author for multiple resources produced by Region 4 ESC to support K-12 mathematics.

Dr. Benson has presented at numerous conferences including the Conference for the Advancement of Mathematics Teaching (CAMT), the Colorado Council of Teachers of Mathematics annual conference, the National Council of Supervisors of Mathematics (NCSM) annual conference, the Middle School Matters Institute, and the Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education. She

has also presented for organizations including the Texas Association of Supervisors of Mathematics (TASM) and CORE®.

Before joining Region 4 as an Education Specialist, Dr. Benson worked in Cypress-Fairbanks Independent School District (ISD) in an alternative setting for middle school and high schools students and at a middle school where she was a teacher, interdisciplinary team leader, department chair, interventionist, and instructional coach. She has also served as a lecturer for Elementary Math Methods, Proportional Reasoning, and Models of Teaching and Learning at the University of Houston.

Dr. Benson earned a B.A. in Mathematics from the University of Virginia and a M.Ed. and an Ed.D. in Curriculum and Instruction with an emphasis on Mathematics Education from the University of Houston. Her doctoral research focused on the influence of students' proportional reasoning on middle school teachers' content and pedagogical content knowledge.

In these varied roles and responsibilities, Dr. Benson's focus remains on students and their teachers and how the mathematical thinking and reasoning of students influences the work of teachers. She works with her team to support all students in the mathematics classroom, especially those struggling to learn mathematics.

RME IMPACT IN TEACHING & LEARNING AWARD

The RME *Impact in Teaching & Learning* award was given to Trevelyn Everitt-Gyure, 8th grade math teacher at Navo Middle School in Aubrey, Texas. The criteria for this award are:

- Demonstrated commitment to cultivating the research-to-practice relationship through supporting teachers' classroom practices.
- Demonstrated commitment to providing ongoing support for the mathematics success of all students through high-quality teaching practices.
- Demonstrated commitment to supporting the mathematics achievement of all students
- Demonstrated excellence in instructional design and/or delivery to support student learning.

Trevelyn Everitt-Gyure was named the Impact in Teaching and Learning award recipient. She has worked collaboratively with two researchers at SMU, Dr. Candace Walkington and Dr. Carole Hayata, on personalized problem-solving and the importance of mastering linear equations; content middle schoolers are challenged with, and an important indicator for high school success. Trevelyn is engaged in critical reflection on the research activities and integrates the ideas from the research study into her day-to-day teaching practice. She continuously contemplates what the research is really showing, what the larger body of research in mathematics education would suggest, and how these types of interventions are actually working in her classroom.

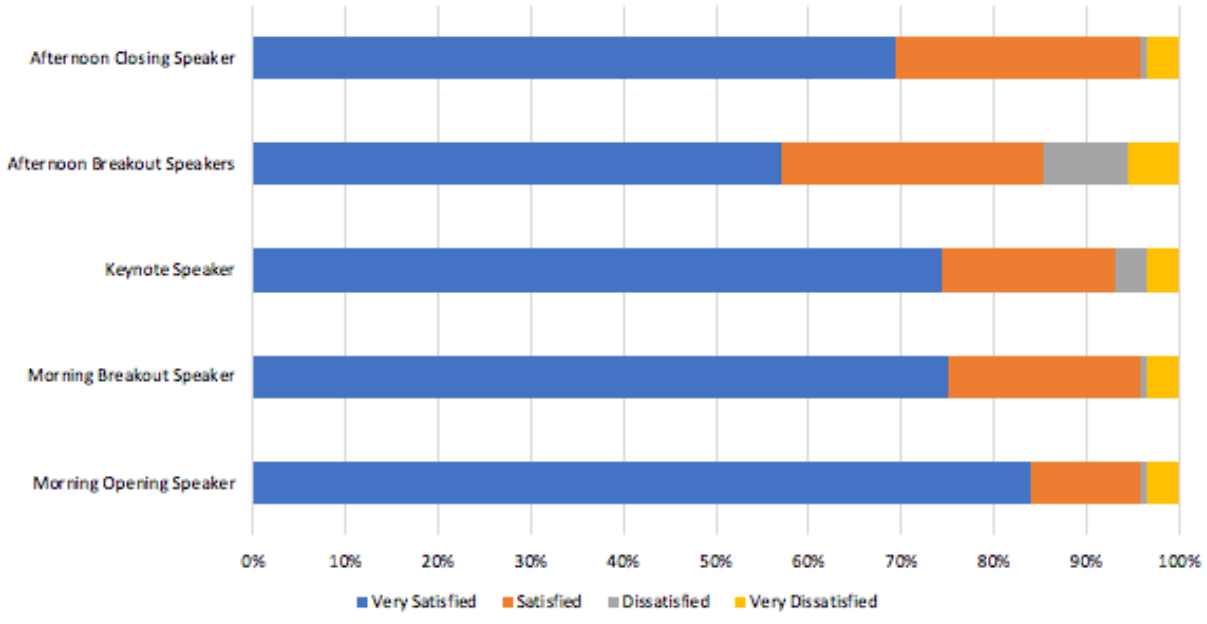
SECTION III: SESSION FEEDBACK

A total of 144 (46%) conference participants provided feedback in the form of a post-conference survey administered using the on-line survey tool, Qualtrics. Section III summarizes the feedback to sessions, and section IV summarizes feedback to the overall conference.

Four questions were asked related to the conference sessions:

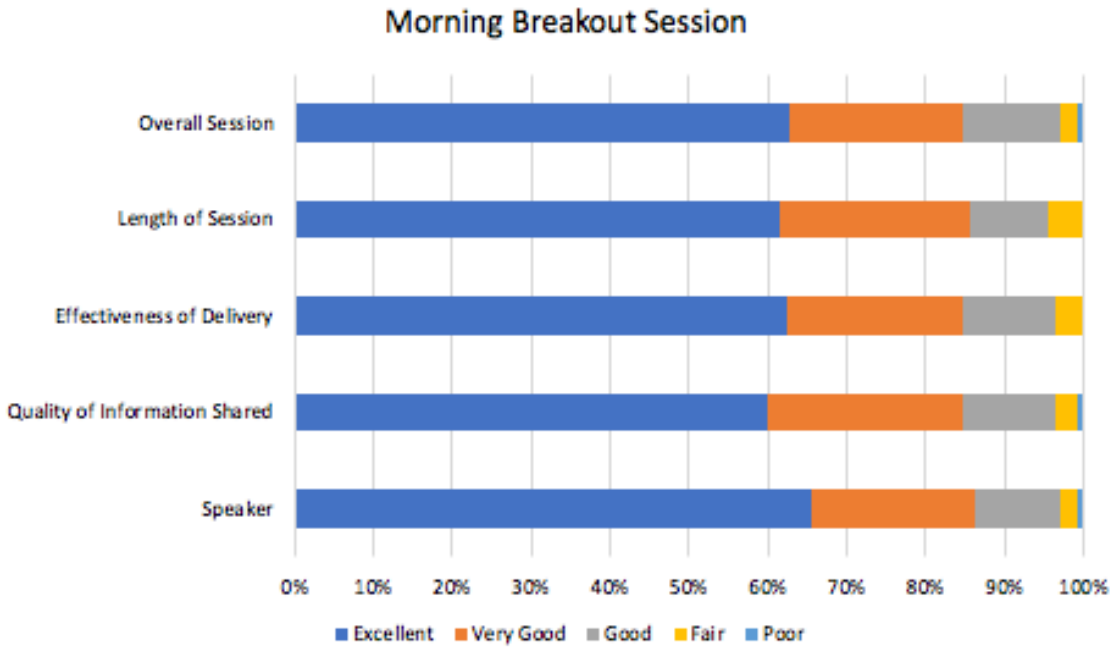
1. Overall, how satisfied were you with: a) morning panel speakers, b) morning breakout speakers, c) keynote speaker, d) afternoon breakout speaker, e) afternoon panel speaker.
2. Please rate your morning breakout session: a) speaker(s), b) quality of information shared, c) effectivness of delivery, d) length of session, e) overall session.
3. Please rate your afternoon breakout session: a) speaker(s), b) quality of information shared, c) effectivness of delivery, d) length of session, e) overall session.
4. Comments on breakout sessions.

We are pleased to report that the overall rating of the conference was highly positive based on the responses to these questions. Overall, the majority of session participants (> 90 percent satisfied or very satisfied) were satisfied with the speakers of each session.



Morning Breakout Sessions

The morning and afternoon breakout sessions consistently showed strong feedback with 80 percent of respondents reporting *excellent* or *very good* for each of the specific ratings.



Afternoon Breakout Sessions

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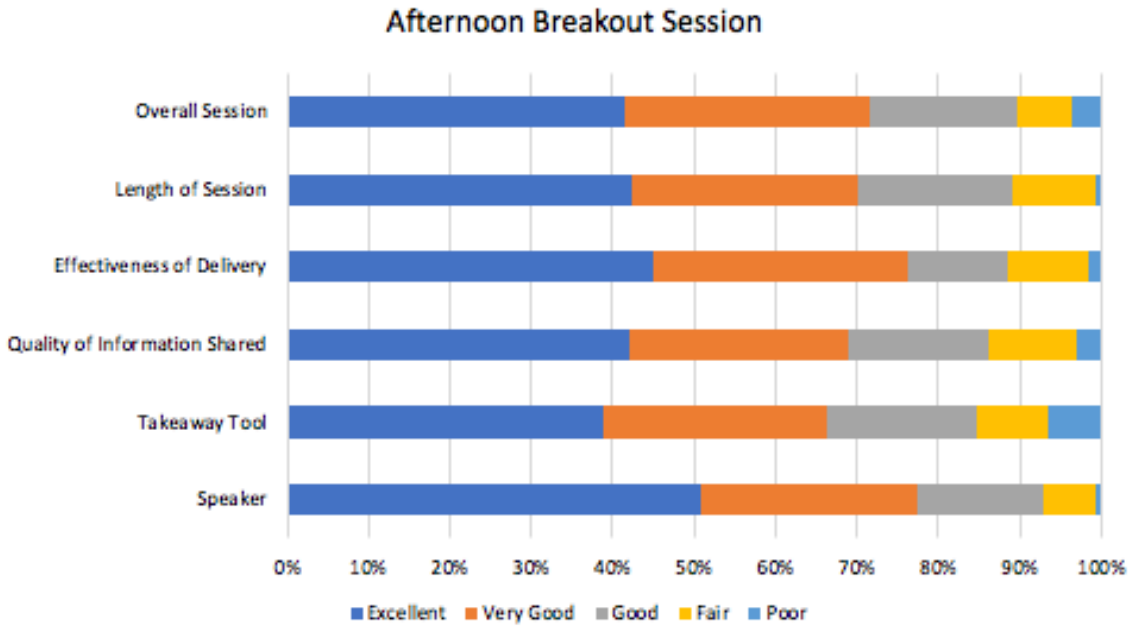


The feedback from the breakout sessions was generally positive. Respondents indicated the content was relevant, and on target with current needs in their classroom.

Comments on breakout sessions:

"The emphasis on problem solving was perfect! I cannot wait to train my K-2 teachers on numberless word problems, and share the additive and multiplicative schemas with my 3-5 teachers for students who are still struggling."

"I loved the breakdown for struggling students. I enjoyed ways to help all students learn and focus on fun engaging ways to make math come alive in the real world and not just a focus on data."

"Great content and relevant solutions to common teacher complaints/concerns."

"I enjoyed the ability to choose your own adventure and the different types of sessions being offered. I loved the takeaway tools shared by the word problems breakout."

"I love that I have been introduced to the breakout session speakers. I feel that I know them, I can relate to what they shared, and that I can contact them and use them as a resource in the future."

"My only regret is that I could not attend them all. They were great! Thank you!!!"

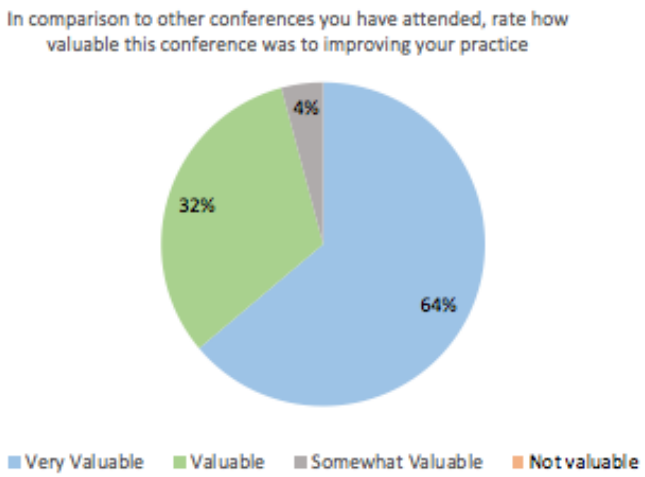
Some participants provided constructive feedback and areas for improvement, the majority of which was geared to space issues and more easily being able to collaborate with other attendees. To accommodate the previous year's crowding issue, the RME team ticketed the breakout sessions, which limited the number of attendees in each session where space was constrained. This was recognized and appreciated by previous years' attendees. In addition, parking and knowledge of the location of the conference remains an issue. RME has included parking signs, sent emails with maps, and will continue to work on ways to ease the logistics of attending a conference on campus.

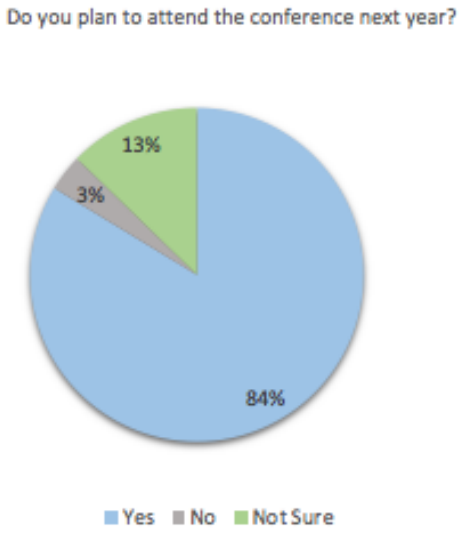
SECTION IV: OVERALL CONFERENCE FEEDBACK

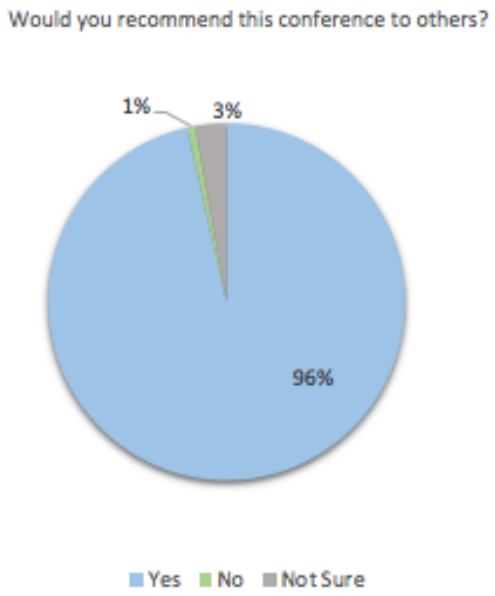
Four questions relate to the overall conference feedback:

1. In comparison to other conferences you have attended, rate how valuable this conference was to improving your practice: very valuable, valuable, somewhat valuable, not valuable.
2. Would you recommend this conference to others?
3. Do you plan to attend this conference next year?
4. What did you like most about the conference?
5. What did you like least about the conference?
6. What themes and topics would you like RME to address next year?
7. How important is the RME Conference as a local and low-cost professional development opportunity to your professional growth?

138 of the respondents (96%) rated this conference as very valuable or valuable compared to other conferences they have attended. 118 of the respondents (84%) indicated that they planned on attending the conference next year and 136 (96%) agreed that they would recommend the conference to others.







What did you like most about the conference?

The participants agreed that the focus on problem-solving in the classroom was both practical and relevant. The strong consensus from the participants was that the resources from the speakers can immediately be taken back to the classroom and applied. In addition, the speakers are consistently highly rated and applauded for the variety of topics.

"All the knowledge I have gain and the vast amount of resources that were given to me. As a third year teacher, I am still struggling to gain better content knowledge of all the subjects I teach. All I gain from this conference I will go and immediately apply it in my classroom."

"The emphasis on problem solving was perfect! I cannot wait to train my K-2 teachers on numberless word problems, and share the additive and multiplicative schemas with my 3-5 teachers for students who are still struggling."

"This conference is one of the best I attend each year. As experts in their field, the speakers always have innovative ideas and thoughts on mathematics topics. Problem solving was the perfect focal point for this year!"

"I appreciated walking away with resources that I can use right away. The speakers are all active in classrooms or with students, so I appreciated hearing from people with firsthand knowledge."

"Wow--the focus on problem solving was on target. I appreciated the high quality of presentations and the streamlined focus. Each presentation built upon the next. Amazing."

What did you like least about the conference?

The constructive feedback received for the 2018 conference was consistently the disappointment about not receiving a "Where is Polygon?" book. Many attendees explained that they were promised a free mathematics book at the beginning of the conference, and that there were not enough books to accommodate all of the participants. One attendee noted that those who left early received a book, but those participants who stayed for the full conference were left without. There were also minor complaints about parking and logistics, which is an ongoing challenge when holding the conference on a college campus. A few attendees also noted that they wished the size of the conference could be expanded, so that more colleagues could attend, and that the rush of registration often leaves out willing participants. The RME team has rectified the logistical error that occurred with the free booklets, and continue to address parking and logistical issues as they arise. Many attendees who attended in 2017 did note and appreciate the changes made from 2017 to 2018, whereby sessions were ticketed prior to the conference, so that overflow was not an issue, as well as eliminating the panel and adding additional whole group sessions in its place. Some participants also noted that not all sessions were interactive, and would prefer that every session offer the chance to interact with colleagues during the session.

How did this year's topic, The Power of Problem Solving, impact your practice?

The responses from this question show that the breakout sessions and whole group sessions provided attendees with useful information that was applicable in their current practice. Many of our respondents stated that they learned problem solving strategies that could be implemented immediately in the classroom. It is crucial to provide relevant and practical content to attendees.

"Problem solving is a topic that arises daily in math conversations. Learning ways to address the issue of lack of student problem solving skills is something I will take back to my district and share!"

"It[this year's topic] is so relevant in math instruction today. As we try to shift away from the "I do, we do, you do" model, this theme provided research and practices that support this shift."

"So many great ideas and I'm excited to use them in my classroom to increase confidence and better math skills."

"Love the topic! There are many things I want to start in my class immediately."

CONCLUSION

Over the last seven years, RME has directly impacted the practices of 1,631 educators, who in turn impart these experiences on tens of thousands of students over the course of their careers. Through the efforts of our dedicated staff and our collaborative *Partners in Practice* team, we were able to continue to maximize the number of educators willing and able to attend this high-quality professional development opportunity. Immediate feedback we received the day of the conference includes the following statistics:

- Ninety-eight percent of respondents rated the conference as **valuable to improving their practice** compared to other conferences they have attended.
- Ninety-seven percent of respondents agreed that they are likely to **incorporate what they learned** at the conference into their practices.
- Ninety-seven percent of respondents agreed that the **speakers delivered high-quality information.**
- Ninety-six percent of respondents would **recommend attending the RME conference to others.**

The 8th annual Research-to-Practice Conference is scheduled for February 8, 2019. We are again implementing a committee of *Partners in Practice*, and are well underway with their feedback in planning our theme, scoping the latest in relevant research, identifying topics that best serve teachers' in their pedagogical and content knowledge, and ultimately sourcing speakers to meet the needs of our audience. With the ongoing support of our funders, we look forward to continuing this trajectory of supporting mathematics education professional development in Dallas and across the state.