

# 35<sup>th</sup> Southeastern Association for Science Teacher Education (SASTE) 2020 Annual Meeting



## “STEM in the Community”

October 3, 2020

Virtual Meeting



**WELCOME!**

## **SASTE Executive Committee's Greetings**

October 3, 2020

Welcome! We are thrilled to have you all as attendees to the 35<sup>th</sup> annual conference of the Southeastern Association for Science Teacher Education (SASTE) hosted virtually for the first time! Thank you all for your support and kindness during the transition from our traditional, face-to-face conference (originally hosted by the University of North Georgia in Dahlonega, Georgia) to virtual as we want to ensure our SASTE community is safe and healthy from the current pandemic. As shared by our past president, Dr. John Pecore (University of West Florida), the SASTE organization and conference "...is a supportive environment where colleagues are eager to learn about emerging research ideas in science teacher education as well as scholarship of teaching works in science education." We value creating a safe and open environment in which to share ideas with all who attend including undergraduate students, graduate students, K-12 teachers and administrators, community members, educational organizations, and higher education staff and faculty.

Our 2020 virtual conference theme of *STEM in the Community* highlights science, technology, engineering, and mathematics in a community context to promote critical conversations and reflection on meaningful and relevant practices of learning in formal, informal, or non-formal spaces. We celebrate STEM or specific disciplines in all learning contexts and support STEM, science, technology, engineering, or technology for all!

Dr. Rosann Kent is our featured keynote speaker and serves as the Appalachian Studies Director and Senior Lecturer for the University of North Georgia. Her scholarship and service interests focus on building a sustainable future for Appalachian communities that include activities such as the Appalachian Teaching Project, Saving Appalachian Gardens and Stories, Gosh Rush Era Cabin relocation and restoration project, and preserving historic gravesites and cemeteries. At the heart of these activities are science and engineering practices that promote a vibrant and rich Appalachian culture.

This year, our SASTE community members were hard at work in two working committees: **1)** supporting President and President-Elect onboarding processes as well as **2)** reviewing the By-laws so that we are in compliance with ASTE regulations and guidelines. These individuals donated their time and effort in strengthening our SASTE community, and we are thankful for their support.

As President of SASTE, I am honored to have served the SASTE community for 2020. I wish you all safe and healthy spaces for this academic year. Create a fantastic 2020 SASTE conference!

Sincerely,

Gina Childers, Ph.D.  
SASTE President 2020

## SASTE 2020 – Executive Committee

### *President*

**Dr. Gina Childers, Assistant Professor, Texas Tech University**

### *President-Elect*

**Dr. Melanie Kinskey, Assistant Professor, Sam Houston State University**

### *Past-President*

**Dr. Stacey Britton, Assistant Professor, University of West Georgia**

### *Secretary – Treasurer*

**Dr. Ryan Walker, Associate Professor, Mississippi State University**

### *ASTE Regional Representative*

**Dr. Jennifer Mesa, Associate Professor, University of West Florida**

## SASTE 2020 - Working Committees

<b>President and President-Elect Onboarding Working Committee</b>	<b>By-Laws Review Working Committee</b>
Dr. Gina Childers, Dr. Melanie Kinskey, Dr. Stacey Britton, Dr. Jennifer Mesa, and Dr. Brenden Callahan	Dr. Gina Childers, Dr. Melanie Kinskey, Dr. Stacey Britton, Dr. Jennifer Mesa, and Dr. John Pecore
<b>SASTE 2020 Conference Planning Committee</b>	<b>President-Elect (2021) Nominations Committee</b>
Dr. Gina Childers, Dr. Melanie Kinskey, Dr. Stacey Britton, Dr. Jennifer Mesa, Dr. Ryan Walker, and Dr. Shana Lee	Dr. Gina Childers, Dr. Melanie Kinskey, Dr. Stacey Britton, Dr. Jennifer Mesa, and Dr. John Pecore

## Technology and Website Maintenance Coordinator

**Dr. Stacey Britton, Assistant Professor, University of West Georgia**

## SASTE 2020 - Virtual Conference Schedule

**Virtual Medium:** The SASTE 2020 virtual conference will be hosted through Zoom meeting rooms during the conference. The Zoom meeting **links** and **passwords** for each session will be provided below along with the session information including presenter and title of presentation.

Presentation sessions will be an hour in length and will feature three presentations. Each presenter has approximately 15 minutes to share information and 5 minutes for questions. Sessions will be moderated by the Zoom host.

**Zoom/Virtual Etiquette:** During presentations, we ask that you mute yourself as well as turn off your video feed. When the time for questions after a presentation is open, you may unmute yourself and turn on your video feed for communication and questions.

1. Sessions highlighted in **BLUE** feature “Traditional Paper” presentations.
2. Sessions highlighted in **PURPLE** feature “Works in Progress” presentations.
3. Sessions highlighted in **ORANGE** feature “Advice from the Trenches” presentations.

## SCHEDULE AT A GLANCE

Welcome Session	8:00 am (EST) / 7:00 am (CST)	See Page 5
Concurrent Session #1	8:30 am (EST) / 7:30 am (CST)	See Page 5
Morning Coffee Break/Early Career Room	9:30 am (EST) / 8:30 am (CST)	See Page 6
Concurrent Session #2	10:00 am (EST) / 9:00 am (CST)	See Page 6
SASTE Business Meeting	11:00 am (EST) / 10:00 am (CST)	See Page 7
Keynote and Lunch	12:00 pm (EST) / 11:00 am (CST)	See Page 7
Concurrent Session #3	1:30 pm (EST) / 12:30 pm (CST)	See Page 7
Afternoon Snack Break/GS and Mentor Room	2:30 pm (EST) / 1:30 pm (CST)	See Page 8
Concurrent Session #4	3:00 pm (EST) / 2:00 pm (CST)	See Page 8

## PRESENTATION ABSTRACTS

A list of presentation abstracts and first authors begin on page 10.

## SASTE BUSINESS MEETING

SASTE Business Meeting Agenda is on page 16.  
SASTE Business Meeting Minutes from 2019 is on page 17.

## VIRTUAL CONFERENCE SESSIONS

### Welcome Session: 8:00 am (EST) / 7:00 am (CST)

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Zoom Link: <https://zoom.us/j/95091641278?pwd=cTcyZXQvUlpnWE5jeHM3SjRacm1jQT09>

Zoom Password: 065929

### SESSION 1: 8:30 am (EST) / 7:30 am (CST)

#### Concurrent Session 1A *Advice in the Trenches*

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Zoom Link:

<https://zoom.us/j/95091641278?pwd=cTcyZXQvUlpnWE5jeHM3SjRacm1jQT09>

Zoom Password: 065929

#### Concurrent Session 1B *Traditional Papers*

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Zoom Link:

<https://uwf.zoom.us/j/95546982150?pwd=QosyakRBdVNseigYOXNCREZzSWo4Zz09>

Zoom Password: 071701

#### **Presentation #1: “Advantages of an Inquiry Approach to Bringing Plant Awareness to Middle Grades Science Instruction”**

First Author: *Tredina Sheppard*, P.K. Yonge Developmental Research School, University of Florida

*Emily B. Sessa* and *E. Christine Davis*, Department of Biology, University of Florida

*Pavlo Antonenko*, College of Education, University of Florida

#### **Presentation #1: “Perceptual Self-Efficacy Changes of Elementary Teachers After Engagement in Engineering-Focused Professional Development”**

First Author: *Leiflyn Gamborg*, Louisiana State University

*Adronisha Frazier* and *Heather Lavender*, Louisiana State University

#### **Presentation #2: “Un’Hidden Figures in STEM: Increasing Representation through Transformative Curricula ”**

First Author: *Torressa Smith*, Georgia State University

*Natalie King*, Georgia State University

#### **Presentation #2: “The Relationship between Secondary Science Teachers’ Self-Efficacy for Culturally Responsive Instruction and their Observed Practices”**

First Author: *Zachary Stepp*, University of Florida

*Julie Brown*, University of Florida

#### **Presentation #3: “Using Interleaving to Enhance Retention”**

First Author: *Marsha Fleming*, Springmont School

#### **Presentation #3: “Learning from Teacher Inquiry: Culturally Relevant Pedagogy”**

First Author: *Rose M. Pringle*, University of Florida

## Morning Coffee Break: 9:30 am (EST) / 8:30 am (CST)

<p><b>General Coffee Break Room</b></p> <p>---</p> <p><b>Zoom Link:</b>  <a href="https://zoom.us/j/95091641278?pwd=cTcyZXQvUlpnWE5jeHM3SjRacm1jQT09">https://zoom.us/j/95091641278?pwd=cTcyZXQvUlpnWE5jeHM3SjRacm1jQT09</a></p> <p><b>Zoom Password: 065929</b></p>	<p><b>Break Room for Early Career Attendees</b></p> <p>---</p> <p><b>Zoom Link:</b>  <a href="https://uwf.zoom.us/j/96535283096?pwd=MlpBaHhhZoZKcjJxdzIzb1pDZTdYdzo9">https://uwf.zoom.us/j/96535283096?pwd=MlpBaHhhZoZKcjJxdzIzb1pDZTdYdzo9</a></p> <p><b>Zoom Password: 093325</b></p>
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## SESSION 2: 10:00 am (EST) / 9:00 am (CST)

<p><b>Concurrent Session 2A</b>  <i>Works in Progress</i></p> <p>---</p> <p><b>Zoom Link:</b>  <a href="https://zoom.us/j/95091641278?pwd=cTcyZXQvUlpnWE5jeHM3SjRacm1jQT09">https://zoom.us/j/95091641278?pwd=cTcyZXQvUlpnWE5jeHM3SjRacm1jQT09</a></p> <p><b>Zoom Password: 065929</b></p>	<p><b>Concurrent Session 2B</b>  <i>Works in Progress</i></p> <p>---</p> <p><b>Zoom Link:</b>  <a href="https://uwf.zoom.us/j/93469989239?pwd=RS9wamFNaEUxYkhZTzluNHdiSERXZz09">https://uwf.zoom.us/j/93469989239?pwd=RS9wamFNaEUxYkhZTzluNHdiSERXZz09</a></p> <p><b>Zoom Password: 552993</b></p>
<p><b>Presentation #1: “Critical Service Learning and Community-Engaged STEM Education”</b></p> <p>First Author: <i>Natalie King</i>, Georgia State University</p> <p><i>Abdulrahman Abdulkadri and Syeda Ahmed</i>, Georgia State University</p>	<p><b>Presentation #1: “Knowledge and Practices of Indian School Science Coordinators: Supporting Science Teachers During the COVID-19 Pandemic”</b></p> <p>First Author: <i>Harleen Singh</i>, University of Georgia</p> <p><i>Hatice Ozen-Tasdemir, Elana Worth, Yuxi Huang, and Hong Thi Hoa Tran</i>, University of Georgia</p> <p><i>Shelby Watson</i>, University of Mississippi</p> <p><i>Julie A. Luft</i>, University of Georgia</p> <p><i>Brooke Whitworth</i>, Clemson University</p>
<p><b>Presentation #2: “Investigating a Rural Science Festival: Attendee Motivations, Interests, and Perceived Benefits”</b></p> <p>First Author: <i>Abby Meyer</i>, University of North Georgia</p>	<p><b>Presentation #2: “A Model of District Science Coordinator Knowledge”</b></p> <p>First Author: <i>Shelby Watson</i>, University of Mississippi</p> <p><i>Yuxi Huang, Harleen Singh, Hatice Ozen-Tasdemir, Elana Worth, Lashawn McNeil, Shaughnessy</i></p>

<p><i>Winnifred Namatovu, Lesley Simanton-Coogan, Chelsea Brooks, and Ryan McDannald, University of North Georgia</i></p>	<p><i>McCann, Hong H. Tran, and Julie Luft, University of Georgia</i></p> <p><i>Brooke A. Whitworth, Clemson University</i></p>
<p><b>Presentation #3: “Micro-Serving Through Science: A Socio-Scientific Framework for School-Based Science Club Implementation”</b></p> <p>First Author: <i>Amber Adgerson, University of South Carolina</i></p>	<p><b>Presentation #3: “Impacting the Practices of Higher Education Faculty in the Physical Sciences”</b></p> <p>First Author: <i>Brooke Whitworth, Clemson University</i></p> <p><i>Lauren Simpson, Whitney Jackson, Alice Steimle, and Julie James, University of Mississippi</i></p>

### SASTE Business Meeting: 11:00 am (EST) / 10:00 am (CST)

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Zoom Link: <https://zoom.us/j/95091641278?pwd=cTcyZXQvUlpnWE5jeHM3SjRacm1jQT09>

Zoom Password: 065929

### Keynote (Dr. Rosann Kent) and Lunch: 12:00 pm (EST) / 11:00 am (CST)

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Zoom Link: <https://zoom.us/j/95091641278?pwd=cTcyZXQvUlpnWE5jeHM3SjRacm1jQT09>

Zoom Password: 065929

### SESSION 3: 1:30 pm (EST) / 12:30 pm (CST)

#### Concurrent Session 3A Traditional Papers

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Zoom Link:

<https://zoom.us/j/95091641278?pwd=cTcyZXQvUlpnWE5jeHM3SjRacm1jQT09>

Zoom Password: 065929

#### Concurrent Session 3B Works in Progress

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Zoom Link:

<https://uwf.zoom.us/j/96602557280?pwd=UzZLT3lzaHZCWVhoZFZFd24rOVFvUT09>

Zoom Password: 643071

**Presentation #1: “The Learning Continues: Engaging Black and Latina Middle School Girls in Virtual STEM Learning Spaces”**

First Author: *Laura Peña, Georgia State University*

**Presentation #1: “Reformed Science Teaching Practice with Professional Learning Community Support”**

<p><i>Natalie King and Jada Byrd, Georgia State University</i></p>	<p>First Author: <i>Rachael Tawbush, The University of Alabama</i></p> <p><i>Sabrina Stanley and Haley Harville-York, University of Alabama</i></p>
<p><b>Presentation #2: “3D VR Technology Affordances to Support Science Learning for Neurodivergent Learners”</b></p> <p>First Author: <i>Rebecca Hite, Texas Tech University</i></p> <p><i>Gina Childers, Texas Tech University</i></p> <p><i>M. Gail Jones, North Carolina State University</i></p>	<p><b>Presentation #2: “Middle Grades Teachers' Engagement with Socioscientific Issues”</b></p> <p>First Author: <i>Melanie Kinskey, Sam Houston State University</i></p>
<p><b>Presentation #3: “Cases of Prospective Elementary Teachers' Iterative Modeling of Scientific Phenomena”</b></p> <p>First Author: <i>Jaclyn Murray, Augusta University</i></p> <p><i>Christi Pace, Augusta University</i></p>	<p><b>Presentation #3: “Supporting Literacy in Science and Math”</b></p> <p>First Author: <i>Brent Gilles, University of West Georgia</i></p> <p><i>Rebecca Gault, University of West Georgia</i></p>

## Afternoon Snack Break: 2:30 pm (EST) / 1:30 pm (CST)

<p><b>Open Forum and Q&amp;A for Graduate Students and Mentors</b></p> <p>---</p> <p><b>Zoom Link:</b></p> <p><a href="https://zoom.us/j/95091641278?pwd=cTcyZXQvUlpnWE5jeHM3SjRacm1jQT09">https://zoom.us/j/95091641278?pwd=cTcyZXQvUlpnWE5jeHM3SjRacm1jQT09</a></p> <p><b>Zoom Password: 065929</b></p>	<p><b>General Snack Break Room</b></p> <p>---</p> <p><b>Zoom Link:</b></p> <p><a href="https://uwf.zoom.us/j/93274557512?pwd=c21NSk9xd1FVbzFoN25ZUIRyL3F2Zz09">https://uwf.zoom.us/j/93274557512?pwd=c21NSk9xd1FVbzFoN25ZUIRyL3F2Zz09</a></p> <p><b>Zoom Password: 810547</b></p>
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## SESSION 4: 3:00 pm (EST) / 2:00 pm (CST)

<p><b>Concurrent Session 4A</b></p> <p><i>Traditional Papers/Works in Progress</i></p> <p>---</p> <p><b>Zoom Link:</b></p> <p><a href="https://zoom.us/j/95091641278?pwd=cTcyZXQvUlpnWE5jeHM3SjRacm1jQT09">https://zoom.us/j/95091641278?pwd=cTcyZXQvUlpnWE5jeHM3SjRacm1jQT09</a></p>	<p><b>Concurrent Session 4B</b></p> <p><i>Traditional Papers</i></p> <p>---</p> <p><b>Zoom Link:</b></p> <p><a href="https://uwf.zoom.us/j/98403929317?pwd=M1RXemNIZWtWbmw0dmhON1JQejJCdz09">https://uwf.zoom.us/j/98403929317?pwd=M1RXemNIZWtWbmw0dmhON1JQejJCdz09</a></p>
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Zoom Password: 065929	Zoom Password: 137971
<p><b>“You Can't Fake the Funk”: Case Studies of Novice Black Male STEM Teachers”</b></p> <p>First Author: <i>Desmond Lee</i>, Georgia State University</p> <p><i>Natalie King, Christine Thomas, and Teresa Jackson</i>, Georgia State University</p>	<p><b>Presentation #1: “The Nature of Science and Positivism: Perspectives from Disparate Fields of Study”</b></p> <p>First Author: <i>Adania Flemming</i>, University of Florida</p> <p><i>Christine Lord</i>, University of Florida</p>
<p><b>Presentation #2: “Educators Taking It to the Community: Black Women and STEM”</b></p> <p>First Author: <i>Teresa Massey</i>, Georgia State University</p> <p><i>Natalie King</i>, Georgia State University</p>	<p><b>Presentation #2: “The Motivations, Interests, and Perceived Benefits of Speakers/Panelists at Science Festivals”</b></p> <p>First Author: <i>Chantelle Renaud-Grant</i>, University of North Georgia</p> <p><i>Winnie Namatovu, Sonny Mantry, and Melissa Foley</i>, University of North Georgia</p>
<p><b>Presentation #3: “(Re)negotiating the Roles of the Black Church in Promoting STEM Education during a Global Pandemic”</b></p> <p>First Author: <i>Vanessa Grady</i>, Georgia State University</p> <p><i>Natalie King and Ryan Wurapa</i>, Georgia State University</p>	<p><b>Presentation #3: “Making the Invisible Visible: Using CDC Simulations to Promote an Understanding of Viral Transmission in a Pre-service Classroom”</b></p> <p>First Author: <i>S. Himangshu-Pennybacker</i>, Middle Georgia State University</p>

## SASTE 2020 - PRESENTATION ABSTRACTS

First Author	Presentation Title	Abstract
Adgeron, Amber	Micro-Serving Through Science: A Socio-Scientific Framework for School-Based Science Club Implementation	There is a clamor for culturally-relevant science coursework. Socio-scientific issues are a way to introduce complex socio-political concepts into the classroom. Science clubs with a “micro-serving”, or small-scale community service, focus are a practical avenue which will allow for more impactful and memorable socio-scientific learning for a school community. By incorporating elements about the nature of science through the projects, students will begin to understand how science research and knowledge can directly impact their communities.
Fleming, Marsha	Using Interleaving to Enhance Retention	Mathematics teachers search for and employ strategies to help students have better retention. Research shows promising results in student remembering when interleaving and retrieval practice are combined as a learning strategy. The purpose of this study is to use interleaved retrieval practice within a middle school mathematics classroom and to investigate whether students remember concepts better. While research strongly supports the use of interleaving and retrieval practice in extending memory, the results of this study were inconclusive and showed no clear patterns of the effects of interleaved retrieval practice at least in part due to incomplete data during the COVID-19 school closures.
Flemming, Adania	The Nature of Science and Positivism: Perspectives from Disparate Fields of Study.	This study examined perspectives of the nature of science and its relationship to positivism. Through interviews with a qualitative and science education researcher, the representations and interpretations of the nature of science, within the context of these two disciplines, were analyzed and compared. The findings indicate the significance of identity, experience with science and science learning, and epistemological frameworks when defining the nature of science, positivism, and their historical context.
Gamborg, Leiflyn	Perceptual Self-Efficacy Changes of Elementary Teachers After Engagement in Engineering- Focused Professional Development	This mixed methods study sought to understand the changes and perceptions of self-efficacy in practicing elementary teachers after participation in an engineer-design focused professional development (PD) workshop. The authors of this study participated along-side these 17 elementary teachers during the 3-day workshop conducted by the Boston Museum of Science for Engineering is Elementary. Survey data and interviews showed multiple perceptual changes among the participants.
Gilles, Brent	Supporting Literacy in Science and Math	The purpose of this presentation will be to provide a first look at a literacy focused professional development opportunity for math and science teachers. One of our local high schools has a large population of students that do not read on grade level. They have made literacy across

		curriculum a focus of school-wide efforts and have invited us to work with their math and science teachers to create more literacy focused lessons. We have targeted our PD to focus on readily available resources and to link these lessons with the math and science practices that are built into Georgia content standards. We will also be looking for any ideas and feedback that the audience would like to share.
Grady, Vanessa	(Re)negotiating the Roles of the Black Church in Promoting STEM Education during a Global Pandemic	In this presentation, we share a research-practice partnership (Penuel & Gallagher, 2017) between faith-based institutions and university faculty to explore the continued implementation of STEM programming during a global pandemic. We highlight a summer program designed to provide access to high-quality STEM learning experiences for students of color and explore the roles of faith-based leaders in leveraging community cultural wealth (Yosso, 2005) to support virtual STEM programming. Findings revealed that faith-based leaders continued their partnership through hosting face-to-face camps and sharing the opportunity to engage in the virtual program.
Himangshu-Pennybacker, S.	Making the Invisible Visible: Using CDC Simulations to Promote an Understanding of Viral Transmission in a Pre-service Classroom	Instructional simulations have the potential to authentically scaffold abstract scientific concepts, such as disease transmission, and model impending impact on communities. This presentation will focus on pre-service teachers' exploration of simulations regarding viral disease transmission, as well as, transferring understanding through creating real-world applications. Students used sample data from a series of real-world simulations from the Center for Disease Control (CDC) to predict outcomes and design applications to minimize viral transmission within school buildings.
Hite, Rebecca	3D VR Technologies Affordances to Support Science Learning for Neurodivergent Learners	Three dimensional (3D) and virtual reality (VR) technologies provide novel opportunities to allow students to investigate scientific phenomena. However, the bulk of research on emergent technologies has focused on neurotypical learners. This descriptive case study used video data, field notes, and a content assessment to explore aspects of presence and affordances of emergent technologies reported by five middle grades students (with diagnosed ADD/ADHD) during their experiences using a 3D, haptic, VR technology for science learning.
King, Natalie S.	Critical Service Learning and Community-Engaged STEM Education	In this presentation, we share findings from retrospective interviews of undergraduate students who engaged in a critical-service learning interdisciplinary honors seminar. Data sources included student artifacts from the course including reflections and evaluations, and follow-up individual interviews two years post-enrollment to gauge their current civic engagement efforts as a result of this experience. Preliminary findings revealed that the course sharpened students' networking skills by working with

		community members to form action plans oriented to improve K-12 education.
Kinsky, Melanie	Middle Grades Teachers' Engagement with Socioscientific Issues	This study explores the influence teaching socioscientific issues during an Earth science course has on in-service middle grades teachers' perceptions about connecting science content to the real world and their subject matter knowledge.
Lee, Desmond	"You Can't Fake the Funk": Case Studies of Novice Black Male STEM Teachers	In this presentation, we share the early teaching experiences of two Black male STEM professionals who have committed to teaching mathematics and science to Black/Brown students within an urban context. We present their case studies and highlight the need to recruit, prepare, and retain more Black male teachers in STEM classrooms. Our participants positioned themselves as facilitators of STEM knowledge in culturally sustaining ways that are grounded in love. They purport that their roles should not be essentialized to disciplinarians and coaches within school settings because they are instrumental in addressing social and emotional needs for whole child development.
Massey, Teresa	Educators Taking It to the Community: Black Women and STEM	The purpose of this presentation is to examine how Black female educator scientists are equipped to support black females going into STEM careers. Teachers as facilitators of student learning are an important factor in the science education process. If a science teacher does not consider oneself as a scientist, it could be difficult for students to see a model that offers a frame of reference to build an identity that includes science. Goldhaber et al. (2015) found that teacher role models (i.e., a racial/ethnic match between teacher and student) can have positive educational benefits for minority students. Minority students, particularly those living and attending schools in disadvantaged settings, benefit from seeing adult role models in their communities actively engaging in science. (King, 1993; Villegas & Clewell, 1998; Villegas & Lucas, 2004). In this presentation Black female science educators and their work outside of the science classroom to bring Black females to STEM careers is highlighted. Further the presentation is a call to action toward changing the deficit narrative of Black women not going into STEM careers.
Meyer, Abby	Investigating a Rural Science Festival: Attendee Motivations, Interests, and Perceived Benefits	Science festivals are informal learning experiences where the public interacts with science experts. We examine a science festival in a Southeastern rural community in the United States through surveys completed by attendees as well as transcribed interviews. We investigate attendees' motivations, interests, and perceived benefits during science festivals. Results show attendees are motivated to bring their children and they view educating others and hands-on experiences as benefits.

Murray, Jaclyn	Cases of Prospective Elementary Teachers' Iterative Modeling of Scientific Phenomena	Pre-program prospective elementary teachers (PETs) engage in scientific modeling of five physical science phenomena across a semester. Through self-directed and guided inquiry, PETs use prior knowledge, evidence from scientific investigations, and peer-to-peer discourse to construct models and written and oral explanations to describe their understanding of the presented phenomenon. Our findings reveal the ways in which PETs express their knowledge of the phenomenon in three discourse modes: visual, written, and oral.
Peña, Laura	The Learning Continues: Engaging Black and Latina Middle School Girls in Virtual STEM Learning Spaces.	This study highlights the impact of a continuance of STEM learning spaces and student engagement afforded to Black and Latina middle school girls through a virtual transmission of an annual STEM summer program serving K-12 students belonging to diverse communities. Preliminary findings indicate that engagement in the virtual transmission of a STEM summer program provided opportunities for Black and Latina girls to build a community with girls of color across the nation in the midst of social distancing due to the COVID-19 pandemic. The participants developed positive STEM experiences by engaging in a culturally relevant and comprehensive curriculum.
Pringle, Rose M.	Learning from Teacher Inquiry: Culturally Relevant Pedagogy	This study explored how science teachers, conducting classroom inquiries, examined their teaching and adjusted their practices to better accommodate culturally diverse students whose performances in science were below average. Data analysis from this interpretive case study revealed a tool box of culturally responsive teaching strategies including flexibility in grouping strategies; explicit incorporation of metaphors and images from the students' culture; culturally responsive classroom management practices and focus on positive teacher-student and student - student relationships.
Renaud-Grant, Chantelle	The Motivations, Interests, and Perceived Benefits of Speakers/Panelists at Science Festivals	A large number of science festivals around the world now engage the public in science through informal learning. This study, based on a science festival held in a small city in the Southeastern United States, investigates the motivations, scientific interests, and perceived benefits of the speakers and panelists participating in the festival. Preliminary results indicate speakers and panelists saw this as an opportunity to educate the lay public making them informed consumers.
Sheppard, Tredina	Advantages of an Inquiry Approach to Bringing Plant Awareness to Middle Grades Science Instruction	In both informal and formal K-12 learning environments, plants are usually overlooked and understudied. This study explores the effectiveness of combating the phenomenon to address plant awareness using the GoFlag curriculum and the impact it has on a diverse group of middle grade students.
Singh, Harleen	Knowledge and Practices of Indian School Science	This qualitative case study will explore the meaningful and significant experiences of school science coordinators in

	Coordinators: Supporting Science Teachers During the COVID-19 Pandemic	Indian schools, during the COVID-19 pandemic. In particular, the study aims to understand the knowledge and practices of school science coordinators that are valuable to them as schools have transitioned from traditional in-person instruction to distance learning, how they have supported science teachers transition to distance learning, and what new knowledge and practices they have developed during this time.
Smith, Torressa	'Un'Hidden Figures in STEM: Increasing Representation through Transformative Curricula	In this presentation, we provide an overview of the "Un"Hidden Figure in STEM curriculum that we designed to highlight contributions of Black and Latinx scientists, inventors, engineers, and mathematicians. This study speaks to their underrepresentation in curricular resources used in formal classrooms and how informal STEM programs can serve as counterspaces. We share pre/post survey results of Black and Latina middle school girls who engaged in this transformative curriculum during a summer STEM program. Utilizing the Multidimensionality of Black Girls' STEM Learning conceptual framework (King & Pringle, 2019), we demonstrate the need for this type of curriculum to be embedded in formal science classrooms.
Stepp, Zachary	The Relationship between Secondary Science Teachers' Self-Efficacy for Culturally Responsive Instruction and their Observed Practices	This mixed methods study compared longitudinal data of 19 secondary science teachers' self-efficacy for culturally responsive instruction with their observed practices. Participants completed a three-course, graduate level induction program focused on CRI at the time of study. Results showed that science teachers' self-efficacy was higher for their observed practices and remained stable. Interviews were explored to determine potential sources of discordance. These included forcible disincentives and a misjudgment of their CRI capability as being inconsequential.
Tawbush, Rachael	Reformed Science Teaching Practice with Professional Learning Community Support	Researchers characterize the progression of reformed teaching practices in secondary science classrooms of Cohort 1 and Cohort 2 teachers from Developing Leaders in Science Teaching (LIST) NSF grant. Reformed Teaching Observation Protocol (RTOP) was implemented to record and analyze reformed teaching practices for 10 LIST scholars in the preservice internship semester. Results of these analyses provide evidence of reformed teaching practices in secondary science classrooms for teachers supported by PLCs during their pre-service careers.
Watson, Shelby	A Model of District Science Coordinator Knowledge	District science coordinators represent an essential but understudied group of teacher leaders. Providing a professional framework for district science coordinators may help to alleviate some of the challenges that they face in their roles. Through interviews with a national sample of current coordinators, we identified the knowledge that is unique to their role and are working to create a model in order to support a professional development framework and trajectory for science coordinators.

Whitworth, Brooke A.	Impacting the Practices of Higher Education Faculty in the Physical Sciences	This exploratory case study examined how the development of physical science educative curriculum materials (ECMs) designed specifically for preservice elementary teachers impacted the practices of higher education faculty. One pair of teachers co-taught the treatment course using the new ECMs and one instructor taught the control course. Data sources included interviews, observations, and artifacts. Findings examined the design principles of ECMs used in higher education science classrooms to improve faculty teaching practices.
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# SASTE – Business Meeting Agenda

## Virtual Conference 2020

### October 3, 2020

#### 1. Introduction of SASTE Executive Committee

President: Dr. Gina Childers  
 President-Elect: Dr. Melanie Kinskey  
 Past-President: Dr. Stacey Britton  
 Secretary-Treasurer: Dr. Ryan Walker  
 ASTE Regional Representative: Dr. Jennifer Mesa

#### 2. Review and Approval of Minutes (SASTE 2019)

Lead Discussant: Dr. Gina Childers

#### 3. Budget Review

Lead Discussant: Dr. Ryan Walker

#### 4. ASTE and SASTE Updates and Information

Lead Discussants: Dr. Jennifer Mesa and Dr. Gina Childers

#### 5. Upcoming President-Elect Review, Vote, and Results

Lead Discussants: Dr. Gina Childers, Dr. Melanie Kinskey, Dr. Stacey Britton, and Dr. John Pecore  
 Ballot/Vote Link: <https://forms.gle/NMwx2K3QaBht6XEF8>

#### 6. By-Laws Review, Vote, and Results

Lead Discussants: Dr. Gina Childers and Dr. Jennifer Mesa  
 Document:  
<https://drive.google.com/file/d/11xzqefsR3r8iGrwppGS9xn79pOMGzJe1/view?usp=sharing>  
 Ballot/Vote Link: <https://forms.gle/TRNd8ZuN8vx1Qjnm7>

#### 7. Awards

Lead Discussant: Dr. Gina Childers  
**Deborah Tippins Mentor Award:** Awardee – Dr. Christine Lotter (University of South Carolina)  
**Eddie Griffen Memorial Award for Outstanding Graduate Student Position Paper:**  
 Awardee: Amber Adgerson (University of South Carolina)  
 Title of Paper: *Utilization of Executive Functioning Skills to Address Black Male Achievement in Science*

#### 8. Open Floor for New Discussion or Announcements

#### 9. Introducing Dr. Melanie Kinskey as our SASTE President for 2021!

Lead Discussant: Dr. Gina Childers



# **Southeastern Association for Science Teacher Education (SASTE) Annual Business Meeting 2019**

## **Secretary/Treasurer's Report**

Date: October 5, 2019 Location: Fusion Education Center, Carrollton, GA Host Institution: University of West Georgia SASTE President: Stacey Britton Theme: STEM Education: Promoting Inclusive Learning

President Stacey Britton opened the business meeting at 8am and welcomed the SASTE members to the Fusion Education Center in Carrollton, GA. She then invited the members gathered to join in and commenced the Business meeting.

Business Meeting:

Item 1: The Business Meeting got underway with a motion to approve the SASTE 2017 and ASTE 2018 Minutes - motion made by Dr. Ryan Walker, and seconded by Dr.

Logan Leslie. Both SASTE 2018 and ASTE 2019 Minutes were unanimously approved.

Item 2: President Britton reiterated the SASTE' focus on mentoring graduate students and drew attention to the Mentors Session at 11:05am

Next, President Britton announced that SASTE 2020 will be held in Dahlonega, GA as planned. Incoming president for 2020, Dr. Gina Childers has secured administrative support for SASTE 2020 at University of North Georgia, even though she has moved to Texas. Given SASTE interest in environmental education, Dr. Childers encouraged all SASTE members to register and attend SASTE 2020, promoting the possibilities for hiking and other outdoor activities at the Dahlonega location.

This was followed by nominations for the 2021 president; Dr. Melanie Kinksey was nominated, and accepted the position as SASTE President for 2021

Item 3: Dr. Sumitra Himangshu-Pennybacker presented the Secretary-Treasurer's Report for 2018-2019. The secretary/treasurer's report was distributed to the attendees and included a fiscal report of conference finances to date.

[NOTE: As of 12.17.18 - Income from 2019 Conference Registrations = \$2,872.56; Expense for 2019 Conference = \$1,203.88. Balance in SASTE Business Account = \$9,100.20]

Item 4: The following Position Papers were presented:

(1) Graduate students Ms. Tredina Sheppard, and Ms. Christine Lord (under the supervision of Dr. Rose Pringle), presented their research that suggests that student engagement in STEM fields is sustained by meaningful experiences at the secondary school level.

(2) Dr. Rose Pringle, then presented the Faculty Position Paper on the Promise and Peril: STEM in Middle School. Dr. Pringle's paper focused on need for STEM literacy,

innovation, and employment. The importance of experiences in grades 6-8 that lay the foundations for STEM trajectory in high school. She also discussed the underlying urgency to clearly define STEM

Education, i.e. Which STEM discipline is being served? Her presentation focused on why it was important for teachers to be able to clearly articulate and emphasize each STEM content during interdisciplinary activities.

A robust discussion ensued regarding the need to define STEM and STEAM, funding, and institutional challenges regarding leadership roles in integrated coursework.

Item 5: This was followed by the Awards presentations by Dr. Stacey Britton

The only Awards presented for 2019 were for the Position Papers and the Past President Service and Leadership Awards.

The Student Position Paper for 2019 was awarded jointly to Ms. Tredina Sheppard and Ms. Christina Lord.

The Faculty Position Paper for 2019 was awarded to Dr. Rose Pringle.

2018 Past President Service and Leadership Award presented to Dr. Ryan Walker (Mississippi State University).

Item 6: A process for onboarding President-elect was suggested and a working committee comprising of Brendan Callahan, Gina Childers, Ryan Walker, Nate Carnes, Stacey Britton, and Jennifer Mesa was convened to address this matter.

Ryan Walker was newly appointed as the Secretary and Treasurer for 2020 (nominated by Sumitra Himangshu-Pennybacker / seconded by John Pecore).

Item 7: Dr. Britton officially passed the gavel to incoming-President Dr. Gina Childers. The business meeting was adjourned at 8:40am

Submitted by Sumitra Himangshu-Pennybacker, Secretary/Treasurer, 2018-2019.