

**91<sup>st</sup> Annual International Conference, The Westin Peachtree Plaza Hotel, Atlanta, GA,  
March 10-13 April 2018**

**Pre-Conference Workshops: Saturday, 10 March 2018**

**Please note the following:**

- **You must register for the Pre-conference Workshops with your Advance Conference Registration.**
- **You may only register for one workshop.**
- **Workshops 1 through 6 are scheduled from 8:00 am until 11:45am**
- **Workshop 7 is scheduled 10:00 am until 11:45am**
- **Conference registration will go live in early-December 2017**

**8:00 AM – 11:45 AM Pre-Conference Workshop #1: Equity and Ethics Committee**

**Free  
Maximum registration - 90**

**Title:** Re-Centering on Scientific Literacy in an Era of Science Mistrust and Misunderstanding

**Organizers:**

Senetta Bancroft, Southern Illinois University, USA ([sfp4@ziips.uakron.edu](mailto:sfp4@ziips.uakron.edu))  
Saiqa Azam, Memorial University of Newfoundland, CAN ([sazam@mun.ca](mailto:sazam@mun.ca))  
Sanghee Choi, University of North Georgia, USA ([sanghee.choi@ung.edu](mailto:sanghee.choi@ung.edu))  
Deniz Saribas, Istanbul Aydin University, Turkey ([denizsaribas@gmail.com](mailto:denizsaribas@gmail.com))  
Phillip Boda, Teachers College, USA ([Boda@exchange.tc.columbia.edu](mailto:Boda@exchange.tc.columbia.edu))  
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Sara Raven, Texas A&M University, [sraven@tamu.edu](mailto:sraven@tamu.edu)  
Lizette Ramos, University of Guadalajara, [Liz0920@gmail.com](mailto:Liz0920@gmail.com)

**Abstract:**

The role of scientific evidence and accompanying implications for the health, progress, and well-being of humans and the earth are being increasingly threatened under the pretext of freedom of religion, freedom of speech, and other individual liberties. Under this increasing threat, an anti-science ideology gains support and the clarification and advancement of scientific literacy by science education practitioners and researchers has a renewed urgency. As highlighted in NARST's conference theme description, scientific literacy is the knowledge and understanding of scientific concepts and principles, and an understanding of how scientists use logic and evidence; in other words, how scientists think. Scientific literacy for all learners, regardless of race, ethnicity, gender, ability, religion, nationality, and more, is core to NARST's and the Equity and Ethics Committee's mission. Thus, through an equity and ethics lens, pre-conference workshop participants will engage in constructive and meaningful dialogue with leading science education scholars about the concept of scientific literacy for all learners and the role of science education in countering today's anti-science rhetoric through scientific literacy within the

contexts of science education practice, research, and policy. Equity-focused scientific literacy dialogue between and among workshop participants and leading science education scholars will be facilitated through round table and panel discussions.

8:00 AM – 11:45 AM **Pre-Conference Workshop #2: Research Committee**

**Regular membership: \$25**  
**All other memberships: Free**  
**Maximum registration - 40**

**Title:** LARIG: Supporting the Success of Early Career Educators and Scholars in Science Education (Multilingual Workshop)

**Presenters:**

Fatima Terrazas Arellanes, University of Oregon, USA ([Fatima@uoregon.edu](mailto:Fatima@uoregon.edu))

Alejandro Gallard, Georgia Southern University, USA ([agallard@georgiasouthern.edu](mailto:agallard@georgiasouthern.edu))

Peter R. Licona, Elizabethtown College, USA ([liconap@etown.edu](mailto:liconap@etown.edu))

Regina Suriel, Valdosta State University, USA ([rsuriel@valdosta.edu](mailto:rsuriel@valdosta.edu))

Diego Rojas-Perilla, Teachers College, Columbia University, USA ([dfr2111@tc.columbia.edu](mailto:dfr2111@tc.columbia.edu))

**Abstract:**

This workshop aims to be a space for doctoral students and early career scholars, particularly Latina/o and other culturally and linguistically diverse students, scholars, and educators, to receive advice on mentorship, publication, and funding from other successfully established scholars in the science education research community. Workshop panelists will present their research to illustrate relevant examples of projects with Latina/o students. The session is also designed for new scholars to establish supportive relationships with knowledgeable mentors and with each other, thus increasing their repertoire of strategies for successfully navigating academia. The workshop will combine panel sessions where participants can ask questions to senior and emerging scholars and small-group discussion where participants will share their experiences in greater depth and receive more specific advice. The discussions will focus on three areas: 1) Advice for how to obtain the mentoring you need and how to become an effective mentor; 2) Approaches to obtaining funding for research in science education and with Latinos and/or other communities; and 3) Strategies for writing and publishing research with Latinos and/or other student populations. Small group discussions will be conducted in the preferred language of the participants (Spanish, English, or any combination of them). Overall, the workshop aims to provide all participants with positive and constructive mentoring experiences, with a sense of empowerment to succeed in their roles as researchers and science teacher educators.

8:00 AM – 11:45 AM **Pre-Conference Workshop #3: Research Committee**

**Free**  
**Maximum registration – 40**

**Title:** Using R for Rasch Analysis to Explore Student Learning Progression

**Presenters:**

Ling Liang, La Salle University, USA ([liang@lasalle.edu](mailto:liang@lasalle.edu))

Xiufeng Liu, University at Buffalo, SUNY, USA ([xliu5@buffalo.edu](mailto:xliu5@buffalo.edu))

Gavin W. Fulmer, University of Iowa, USA ([gavin-fulmer@uiowa.edu](mailto:gavin-fulmer@uiowa.edu))

Irene Neumann, Leibniz-Institute for Science and Mathematics Education, Germany  
([ineumann@ipn.uni-kiel.de](mailto:ineumann@ipn.uni-kiel.de))

**Abstract:**

This workshop is designed for those who are interested in learning more about using Rasch analysis for exploring learning progressions. Participants should have had some basic understanding of Rasch measurement theory. At the workshop, participants will be engaged in hands-on activities to use R packages and analyze a given data set. The data analysis activities will be used as a basis for discussion of data interpretation and challenges associated with developing measurement instrument for learning progression research. Participants are expected to bring own laptops. Instruction for downloading and installing R and RStudio as well as background reading will be sent to the registered participants prior to the conference.

8:00 AM – 11:45 AM **Pre-Conference Workshop #4: Research Committee**

**\$25**

**Maximum registration – 30**

**Title:** Integration of Neuroscience and Science Education to Understand Student Learning

**Presenters:**

Richard Lamb, University at Buffalo, SUNY, USA ([rlamb@buffalo.edu](mailto:rlamb@buffalo.edu))

Pavlo Antonenko, University of Florida, USA ([p.antonenko@coe.ufl.edu](mailto:p.antonenko@coe.ufl.edu))

John B. Firestone, Washington State University, USA ([jonah.firestone@gmail.com](mailto:jonah.firestone@gmail.com))

**Abstract:**

Much of the work in science education at all levels is focused on trying to gather evidence to understand how the process of student learning occurs. Researchers in science education primarily derive data from the use of self-reports, content measures, interviews, and talk-aloud protocols which provide only a retrospective look at learning (Antonenko & Niederhauser, 2010; Antonenko et al., 2010). Neuroscience provides a new lens through which to examine student learning, and it is important for science education researchers to understand how to make use of data derived from these sources. The presenters of this workshop will provide training in the use and analysis of neuroimaging and autonomic nervous system (ANS) measures. These measures, such as functional near-infrared spectroscopy (fNIRS) and electroencephalography (EEG), have the potential to assist in understanding the products of learning and the process of learning. Topics covered in this workshop will include protocol development, data collection, data analysis, data interpretation, and integration of these physiological measures and more traditional educational measures. In addition, we will cover reporting standards as established by the American Psychological Association and those found in neuroscience.

8:00 AM – 11:45 AM **Pre-Conference Workshop #5: External Policy and Relations  
Committee**

**Free  
Maximum registration – 50**

**Title:** Research-practice Partnerships with State and Local Science Education Leaders

**Organizers:**

Charles W. (Andy) Anderson, Michigan State University, USA ([andya@msu.edu](mailto:andya@msu.edu))

Phillip Bell, University Of Washington, USA ([pbell@uw.edu](mailto:pbell@uw.edu))

Amelia Gotwals, Michigan State University, USA ([gotwals@msu.edu](mailto:gotwals@msu.edu))

Tiffany Neill, Oklahoma State Department of Education, USA ([Tiffany.Neill@sde.ok.gov](mailto:Tiffany.Neill@sde.ok.gov))

William Penuel, University of Colorado, USA ([william.penuel@colorado.edu](mailto:william.penuel@colorado.edu))

Tamara (TJ) Smolek, Michigan State University, USA ([heckt@msu.edu](mailto:heckt@msu.edu))

Douglas Watkins, Denver Public School District, USA ([douglas\\_watkins@dpsk12.org](mailto:douglas_watkins@dpsk12.org))

Mary Margaret Welch, Seattle Public Schools, USA ([mmwelch323@gmail.com](mailto:mmwelch323@gmail.com))

**Abstract:**

This workshop focuses on how science education researchers can form productive partnerships with state and local science education leaders. Goals will include (a) introducing participants to the roles that state and local science educators play in supporting science education at the state and local levels, (b) helping participants to identify opportunities for partnerships to support science education in their states, and (c) sharing resources that support these efforts.

After initial presentations by science education researchers and state and local leaders, participants will each participate in two breakout groups for deeper discussion and sharing resources. The breakout groups and the issues they address are as follows:

- Assessment, led by Amelia Gotwals, Michigan State University, and Tamara (TJ) Smolek, Michigan Department of Education
- Curriculum, led by Charles W. (Andy) Anderson, Michigan State University, and MaryMargaret Welch, Seattle Public Schools
- Professional Development, led by Phil Bell, University of Washington, and Tiffany Neill, Oklahoma State Department of Education
- Classroom Observation and Teacher Evaluation, led by William Penuel, University of Colorado, and Douglas Watkins, Denver Public Schools

## 8:00 AM – 11:45 AM Pre-Conference Workshop #6: Publications Advisory Committee

**Free**  
**Maximum registration – 40**

**Title:** Workshop on Scholarly Writing and Innovation for NARST Newcomers

### **Organizers:**

Deborah Tippins, University of Georgia, USA ([dtippins@uga.edu](mailto:dtippins@uga.edu))

Sophia Jeong, University of Georgia, USA ([sjfampicasa@gmail.com](mailto:sjfampicasa@gmail.com))

### **Presenters:**

Lynn Bryan, Purdue University, USA ([labryan@purdue.edu](mailto:labryan@purdue.edu))

Felicia Mensah Moore, Teachers College, Columbia University,  
([moorefe@exchange.tc.columbia.edu](mailto:moorefe@exchange.tc.columbia.edu))

Victor Sampson, University of Texas at Austin, USA ([victor.sampson@utexas.edu](mailto:victor.sampson@utexas.edu))

Christina Schwarz, Michigan State University, USA ([cschwarz@msu.edu](mailto:cschwarz@msu.edu))

Jan van Driel, Melbourne, Australia ([j.vandriel@unimelb.edu.au](mailto:j.vandriel@unimelb.edu.au))

Maria Varelas, University of Illinois Chicago, USA ([mvarelas@uic.edu](mailto:mvarelas@uic.edu))

Deborah Tippins, University of Georgia, USA ([dtippins@uga.edu](mailto:dtippins@uga.edu))

Dana Zeidler, University of South Florida, USA ([zeidler@usf.edu](mailto:zeidler@usf.edu))

### **Abstract:**

As current and future science education scholars we are engaged in a lifelong process of coming to understand ourselves as individuals, as members of the science education community, and as participants in a constantly changing global society. An important part of this journey and a researcher's professional life is sharing scholarly work with colleagues.

For many researchers, the first place to share work is at a conference; thus, learning to write conference papers is an essential part of the journey. Conference papers can then lead to publications. Learning how to conceptualize, write and revise research for publication can be challenging. To support some of NARST's newest members, the Publications Advisory Committee is sponsoring a pre-conference workshop on scholarly writing. We welcome newcomers to NARST (including early career scholars, international science education researchers, and disciplinary-based education researchers) to consider important questions about writing and publishing. The workshop will consist of a panel, question and answer session, and roundtable group discussions about topics of relevance to writing and publishing scholarly work. Participants will have an opportunity to discuss and receive feedback on specific questions they have or issues they have encountered in the writing and publication process. Participants are encouraged to reflect on questions they have about the writing and publication process in advance of the workshop and to bring these questions to the roundtable discussions.

The workshop will consist of the following activities: a) introduction to the goals of the workshop and panelists; b) individual presentations by panelists around selected topics of significance to writing and publishing; c) interactive question/answer session with participants and panelists; d) roundtable discussions and mentoring session, e) parting thoughts and brief comments from panelists, and f) conclusion/workshop evaluation. If you have any questions about whether this workshop is appropriate for you please contact Alicia Alonzo

(alonzo@msu.edu) or Deborah Tippins (dtippins@uag.edu) before registering. We look forward to your participation!

10:00 AM – 11:45 AM

**Pre-Conference Workshop #7: Membership Committee**

**Free**

**Maximum registration – 90**

**Title:**

Early Career Faculty Forum

**Organizers:**

Membership Committee

**Presenters:**

Senior NARST Scholars

**Abstract:**

The Early Career Faculty Forum uses a rotating round table approach to introduce junior faculty members and post-doctoral fellows to peers, recently promoted colleagues, and prominent scholars. This forum will focus on the nuances of succeeding during the early careers years as a faculty member. Our discussions will include issues of developing and maintaining a research agenda (e.g., publications & grant writing), adhering to teaching responsibilities, and effective ways for engaging in meaningful service experiences. In addition, the forum will explore many of the challenges of transitioning into new professional roles and maintaining balance in your life in the process. The Early Career Faculty forum will provide participants with a detailed examination of the many small nuances that impact the successful navigation of early faculty careers in science education.