

eNARST NEWS

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NARST

A worldwide organization for improving science teaching and learning through research

A MESSAGE FROM THE PRESIDENT



Sharon Lynch
President

Looking Back with Pride and Pleasure to the 2012 NARST Annual International Conference in Indianapolis, Indiana

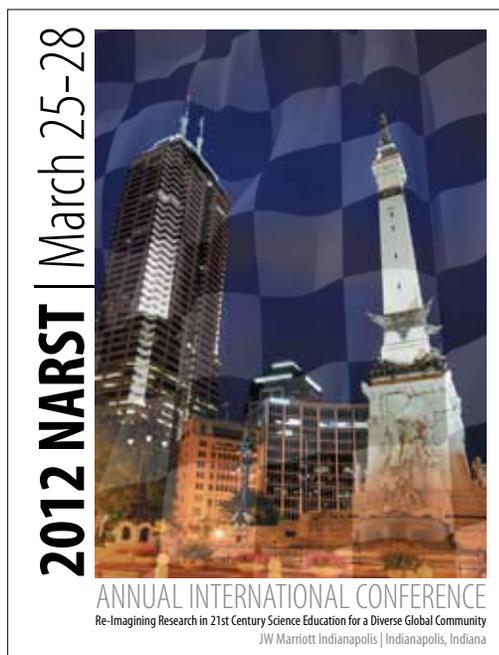
Our "Indy" 2012 Conference had near record-breaking attendance with 1207 registrants. About a third of the NARST scholars who traveled to Indianapolis came from places outside of US borders. Two excellent plenary sessions set the tone for the conference. Co-presenters Paul Cobb and Kara Jackson energetically and cogently made the case for a new kind of rapid and responsive research in mathematics education by working closely with school districts. They offered a theory of action to improve the quality of teaching subject matter at scale that could be applied to science education. Okhee Lee provided a thoughtful and carefully constructed argument for a NARST research agenda for science education in a global context. Okhee's presentation made her case beautifully with a set of graphics that demonstrated trends for new science learners and the concomitant research implications, in the context of practice and policy.

The conference theme, "*Re-Imagining Research in 21st Century Science Education for a Diverse Global Community*", was

developed by President Randy McGinnis. Randy gently but firmly guided the conference toward the challenge of the theme, as NARST's global character becomes more apparent. There was a standing-room-only special session organized by European Science Education Research Association (ESERA) president Manuela Welzel-Breuer, in collaboration with Sibel Erduran, Chair of NARST's International Committee. Jonathan Osborne and Marcus Hammann led a Presidential Session on the on the new PISA assessment framework. Jan Van Driel, Xiufeng Liu, and Randy McGinnis presided over a memorial symposium honoring the work of scholar Phil Scott. The session captured both the substance and spirit of his elegant work, through talks by speakers from around the world. NARST's first new Research Interest Group (RIG), The Continental and Diasporic Africa in Science

Education, proposed by Mary Atwater and Felicia Moore Mensah, focuses on a topic that has both a global and historical perspective. Anita Welch and I worked with the 2012 Program Subcommittee on Virtual Presentations to provide a synchronous, SKYPE-based virtual session featuring three research teams from three different African nations. Based upon evaluations, the session was a successful first venture into virtual presentations. We look forward to Virtual Sessions 2.0 in 2013, under the able guidance of Anita Welch and President-Elect Lynn Bryan and the new Ad hoc Committee on Virtual Presentations.

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About a third of the conference attendees were graduate students. It is a pleasure to hear their contagiously enthusiastic offers to participate and their ideas for NARST. This group is organizing itself more formally, led by Takumi Sato and others. The NARST Board is solidly behind finding ways to capitalize on all of this new science education research talent. We look forward to their increasingly representative participation at NARST Board meetings in 2013 and beyond.

The Education Policy and Relations Committee and Policy Strand provided opportunities for members to build an important professional community and networks in anticipation of the USA-based Next Generation Science Standards (NGSS). Virtually all NARST members who work within the context of US K-12 science education will be affected by the standards, and the NGSS likely reflect some of the international thinking about STEM education, as ideas cross borders and cultures. There were two symposia to make NGSS policy connections by featuring members of the Council of State Science Supervisors (CSSS). This group is eager to connect with NARST members.

Bill Kyle, our Executive Director, and his band of doctoral students were everywhere, smoothing over any glitch with good humor and determination. Bill does this and makes the conference fiscally viable, allowing NARST to grow in aspirations and services to members. Robin Turner and her group from DMG make the business end of organization sound, efficient, and cheerful. One must be especially grateful for the hard work of Toni Sondergeld who constructs the conference program together every year. Finally, none of this could happen without the work of the Strand co-chairs, who are the hearts and souls of Annual International Conference. They are the intrepid group that takes the raw proposals and somehow turn them into a coherent and exciting conference, strand by strand.

The board leadership and committee members worked hard throughout the year to keep the activities of our organization top notch. Our societal publication, the Journal for Research in Science Teaching is aptly led by Angela Calabrese Barton, Joe Krajcik and Bob Geier. Our journal is now rated fourth among education research journals, just behind the more general AERA publications. Kudos to all past JRST editors and contributors who have helped make this journal so prominent and well-regarded. Thanks to Angie, Joe and Bob and the entire Editorial Board of JRST for taking this premier journal in exciting new directions. The newly built EJRST webpage has a section devoted to community building, including blogs and discussions. Moreover, I owe Bob Geier heartfelt thanks for his willingness to help us to use EJRST webpage for NARST committee self-nominations. It was a pleasure to use this new feature.



Looking Forward—2013 NARST Annual International Conference: The S in STEM Education; Policy, Research and Practice

Just a few weeks ago in May, 2012, I believe that my research group “found” an example of STEM education that was integrative, innovative, and exciting. By all accounts and indicators, it appears that it is also equitable. The site was Manor New Tech High School in Manor, Texas, and my NSF-funded research team of six had spent a week at the school, visiting classes, interviewing teachers, students, and members of the community, and attending events. We were hosted by a dynamic principal who believed that a high school of 400 students, self-selected and admitted by lottery, and a staff of carefully chosen, smart, and motivated teachers (many from the University of Texas Austin UTeach program) could create a new kind of school. The school implements a project-based integrated curriculum for all STEM subjects, including the humanities, all of the time. The students, regular kids except for their willingness to sign up for this ambitious and innovative school, were outscoring their counterparts in the district and state. More importantly, they were attending

Continued on page 3

college in record numbers, although many were “first generation” college-goers. They could explain what they were learning, how they were learning it, and demonstrate their accomplishments. Wise to the ways of a world that would welcome their skilled expression of ideas and values through words and media, they seem poised for success.

The theme of 2013 NARST Annual International Conference in Puerto Rico is the “S” in *STEM Education; Policy, Research and Practice*. There is no one agreed upon definition of STEM education, but one that works for my research group is “... an interdisciplinary approach to learning where rigorous academic concepts are coupled with real-world lessons as students apply science, technology, engineering, and mathematics in contexts that make connections between school, community, work, and the global enterprise enabling the development of STEM literacy and with it the ability to compete in the new economy (Tsupros, Kohler, & Hallinen, 2009)”. In some education venues, STEM is simply an acronym for its component disciplines, with a business-as-usual approach to science teaching and learning. In others, like the school discussed above, there is real excitement not only for the students, but for communities that are deliberately constructing policies that encourage public-private STEM education partnerships. In many places this includes the recognition that students traditionally underserved in STEM education are a valuable resource who can contribute the economic health and civic well-being of the community in the future, building opportunity structures for young people

*Science educators
and university
researchers in Puerto
Rico will be helping
NARST members
make connections
with their
educational system*

otherwise shut out of STEM and other fields. Entire nations are also making a similar calculus.

But what do we really know about STEM education?

Where is the science education research on STEM education in our global society?

The 2013 NARST Annual International Conference can reveal the state of the art. Strands on Science Learning and Teaching, Informal Science Education, and Technology all provide fertile ground

to explore the S in STEM education. The philosophers of science should have plenty to say about the S in STEM, and some have promised a lively critique. It would be naïve not to critically examine STEM for the standpoint of equity issues. The Policy Strand should be rich with ideas, analyses, and recommendations. It is my hope that the set conference papers will provide state-of-the-art thinking about science education research in STEM and how it is construed and conducted across the globe.

In planning for the conference in Puerto Rico, we have contacted science educators and university researchers in Puerto Rico with the help of NARST members with connections to the educational system there, and have issued personal invitations to the 2013 NARST Annual International Conference. We will follow-up with more ideas for involving Puerto Rican science educators. We welcome your ideas about how to best use this unique venue on behalf of visiting NARST members, and on behalf of science education within the Commonwealth of Puerto Rico.



Fun Run Event at NARST 2012

Over 150 signed up to complete the Indy 5000 5K Fun Run at NARST in Indianapolis. Come Monday morning, approximately 60 people were at the starting line, with the other participants electing to complete the Fun Run in an alternative location. Walkers, joggers, runners, families and friends participated in the Monday morning event. Businesses, universities, and associations actively sponsored this event through the donation of money, or materials.

The following 14 organizations donated over \$1300 that helped to pay for Nike shirts that were printed with ‘Mind and Sole, Indy 5000,’ and Shot Bloks. The sponsors for this fun run were:

Wiley Publications
Michigan State University
Science Education at the Crossroads
Indiana University
University of North Carolina-Greensboro
Illinois State University
Penn State

University of Georgia
University of Michigan
University of Maryland
Sole Sports
North Carolina State University
NSTA
University of Iowa

PRESIDENTIAL ADDRESS

Re-Imagining Research in 21st Century Science Education for a Diverse Global Community

J. Randy McGinnis
University of Maryland



Presidential Address
NARST Annual International Conference | Indianapolis, Indiana USA

NOTE: The slides for Randy's presentation are coordinated with his remarks and can be viewed through the link below.

[Click here to view the presentation*](#)

Slide 1

Greetings, my fellow NARST members and guests. Or, as greetings

are given in just a few of the many other languages used by NARST conference attendees: "An-nyong Ha-se-yo" (Korean); "Bonjour" (French), "Guten Tag" (German), (Dutch), "Hola" (Spanish), "Nei Ho" (Chinese, Mandarin), and in a language I used during my 3 and a half years as a teacher in Swaziland, Africa (1981 to 1985) "Sanibonani" (Zulu/siSwati).

Slide 2

In my remarks I would like to present an argument that I believe at this time to be of high importance in our NARST history. Recall that NARST, a worldwide organization for improving science teaching *and learning*, began in 1928, the year penicillin was discovered—an auspicious co-incident, indeed!

Before I begin the substance of my remarks, I need to share with you that I have a bias for change.

I start with an assertion made by many which I believe you would find re-assuring, at least provisionally: As a community of science education researchers worldwide we have worked diligently and have learned much over the past 85 years to get better at what we do to improve upon the learning and the teaching of science.

Slide 3

However, I need to follow up on that statement by stating that much, too, of what we say we "know" remains tentative, and to some critics of our scholarship, in need of re-consideration. In fact, as I stand here in front of the assembled NARST community in 2012 in Indianapolis and as I reflect

on our present situation, I find myself forced to acknowledge a major problem that confronts our community. That is, as we proceed even further into the 21st Century it remains unknown to those of us who know our field and actively participate in it how much remains unknown in the study of science teaching and learning and how much more it will require to be understood for us to feel more confident and successful in generating such knowledge.

Slide 4

What are the advances on the horizon—how can we achieve them? I find myself thinking increasingly more of the future and our imperative need to approach the necessary problem solving our work requires (especially since the problems in science education are, complex, dynamic—and often-times ill-structured)—in new, and re-imagined ways that will

What are the advances on the horizon—how can we achieve them?

provoke higher levels of epistemological development.

No one knows what will be successful strategies for science education research in the 21st

century. We can state with some degree of agreement that our time is facing immense complex changes brought about by: economic and cultural transformation, sustainability concerns, and, globalization.

I believe it would be prudent to approach change in our research from several fronts. I propose that we take this moment to challenge some taken for granted notions concerning our research field and our association, both of which are becoming refreshingly more diverse and global.

This is a time that calls for a fresh modern spirit. Therefore, let's consider some new alternative approaches that may be more fruitful for us to pursue.

Our intellectual era is described by philosophers as

Continued on page 5

*A Prezi accompanied the delivery of the Presidential Address. Prezi slides that correspond with the text are indicated in brackets. The Prezi can be accessed via <http://www.narst.org/annualconference/2012conference.cfm> (select "Presentation" under Presidential Address).

post-modern, a time characterized by a reappraisal of our taken for granted assumptions concerning traditional ideas and practices. Truly we live in a time of “Re”—re-examining; re-framing; re-casting; re-considering; rethinking. You now may now recognize the connection between my remarks and to the theme for this 85th NARST Annual International Conference, “*Re-Imagining Research in 21st Century Science Education for a Diverse Global Community.*”

Slide 5

Here is a quote to set the stage for my further remarks,

"Education either functions as an instrument which is used to facilitate integration of the younger generation into the logic of the present system and bring about conformity or it becomes the practice of freedom, the means by which men and women deal critically and creatively with reality and discover how to participate in the transformation of their world."—*Paulo Freire*

I take from Paulo Freire’s comment that the “education” to which he refers applies directly to what takes place in our Association. That is, our “education” here at our annual international conference and through our Association’s dissemination outlets (including our highly-ranked, peer-review journal (the *Journal of Research in Science Teaching—JRST*) for which I have much familiarity as a reviewer, contributor, past associate editor, and immediate past Editor-in-Chief), functions either as a status quo enculturation process or as a more liberating process in which creativity is an essential component. Of course, we should keep in mind that the global body politic influences ideas in science education, which directly impacts our research.

What might be viewed as a status quo enculturation process in our Association?

As a result, new topics, new theoretical frameworks, and new data collection sources would be encouraged and welcomed in our research.

Slide 6

Here I present a model based on amplification. Basically, I believe enculturation occurs when we engage in unreflective practices that result in conformity, such as presenting on research on science teaching and learning conducted in un-imaginative ways on topics of little, if any, remaining uncertainty. Instead, I would like for us to challenge such a notion in a 21st Century context by imagining an alternative, new reality: the notion that research on science teaching and learning is best viewed as a fundamentally creative process conducted best by those who are drawn to reasonable risk.

As a result, new topics, new theoretical frameworks, and new data collection sources would be encouraged and welcomed in our research.

What might be examples of research at this conference that illustrate research for a 21st Century that is distinguished as creative, and contain some reasonable risk? What are the test beds in which the ideas and tools we need in order to move forward successfully are being developed, and in which identify the most pressing and important problems that need to be investigated?

This year I challenged the Coordinators of our 15 Strands in the Program Committee to take on the task of identifying examples of proposals that aligned well with our conference theme. They had most contact with submitted proposals for this conference, so it made much sense to me that they should be the ones to engage in this type of selection.

Before this conference I posted on our NARST Listserv the Strand Coordinators’ recommended list of sessions that align well with the conference theme, augmented by two NARST

Continued on page 6

administrative sessions also aligned well with the conference's theme. I hope you found that list of interest and of use. Here, I highlight a few of those recommended sessions by these three categories:

Slides 7 through 11

See Presentation for additional text and Illustrations.

I hope these few examples may peak your interest and curiosity in the others listed, and to look for similar features in other NARST conference sessions, perhaps even in your own.

I would like to end my remarks with a special "shout-out" to the newest members of NARST. As someone who over the last 23 years has enjoyed yearly attendance at our annual international conferences and who has participated in the Association in a variety of volunteer roles and leadership positions, I have been totally, unequivocally—and hopefully, positively—"NARSTIFIED," a peculiar condition that I am sure must elicit multiple mental images by those who consider it. Here, for your inspection, is my mental image of my NARSTified condition as a science education researcher.



Slide 12

"NARSTified" graphic

Slide 13

In my calculation, using 10 years for each generation of NARST members (a time period calculated from a higher education context, since it would allow sufficient time for a

It has been my honor and privilege to serve our Association as NARST's 85th President.

*Thank you,
J. Randy McGinnis*

member to first join NARST in graduate school, then as a new faculty member provide time to successfully direct another graduate student to completion of a doctorate in our field—thus, successfully reproduce a new generation of NARST members every 10 years), I am a representative of NARST's 7th generation (the 1982 to 1991 cohort).

To NARST's 10th generation (2009 to 2018), I extend a hearty welcome! Important for all of us to recognize, NARST is undergoing a notable generational change: 1/3 of our approximately 1600 membership now consists of graduate students. As I stated in my winter 2012 ENARST ENEWS President's Column, *"NARST is moving forward by growing younger."* What this generational shift may entail for our Association in the 21st Century remains to be determined, but I am very hopeful.

To our newest NARST generations, those who are graduate students and early career scholars, it is my hope that you will continue to grow in NARST and to change NARST in your image. I have confidence that you, in particular, will rise to the challenge that is expressed in this year's conference theme, *"Re-Imagining research in the 21st Century for a diverse global community."* I predict that by your doing so, NARST will be re-shaped, and we not end up with what we had; instead, NARST will become what is needed to be successful in the 21st Century.

It has been my honor and privilege to serve our Association as NARST's 85th President.

Thank you.

Slide 14

NARST 2012

Re-Imagining Research in 21st Century Science Education for a Diverse Global Community

EQUITY & ETHICS COMMITTEE



Felicia Moore Mensah
Chair

We would like to thank our members of the committee for their commitment and service, and especially the Co-chair, Julie Bianchini, and members, Sarah Barrett, Doris Ash, and Jim Ellis who are rotating off; and we welcome our new members, Cassie Quigley, Irene Osisioma, and Jacqueline Samuel; our graduate student representative, Seema Rivera; and Bhaskar Upadhyay who is our E&E Representative to the Membership and Elections Committee. The E&E Committee organized several sessions and activities at the annual conference. They are described below.

Jhumki Basu Scholars Program

Congratulations to our sixteen 2012 Jhumki Basu Scholars! They are: Alexis Patterson, Alicia Trotman, Angela Shelton, Andrea Motto, Calisha Petty, Cassie Quigley, Geraldine Cochran, James Nyachwaya, Kristina Tank, Mary Hoelscher, Nancy Albrecht, Natasha Johnson, Salina Gray, Samantha Strachan, Temecia Jones, and Yeni Garcia. The Scholars received \$750 to attend the annual conference. As part of their induction into the program, they attended the Pre-Conference Workshop. *Next year we look forward to their contributions in the New Scholars Symposium!*

Pre-Conference Workshop

With the theme of *“Enacting Equity and Social Justice in Science Education Careers”*, the pre-conference workshop is organized for scholars of color and individuals interested in scholarship involving equity and social justice in science education. Break-out sessions facilitated by eminent scholars in the field represented the spectrum of various career stages and research interests. More than 40 participants had the opportunity to (1) discuss current topics and methods of equity and social justice research and (2) share experiences that help develop successful transitions in science education. Feedback from those in attendance and who submitted evaluation forms, 56% had not obtained a PhD, and 76% attended the E&E preconference workshop for the first time. Participants note that strengths of the pre-conference are opportunities to make connections and to network with graduate students and junior scholars, and to get practical research and career advice from senior scholars. Therefore the pre-conference workshop serves as a friendly introduction to the NARST community. We thank the workshop organizers Regina Wragg, Debi Roberts-Harris, Deb Morrison, and Alicia Trotman.

Committee Sponsored Sessions

First, the New Scholars Symposium featured thirteen 2011 Basu Scholars who presented their research in a session entitled *“Teaching and Learning Science in Diverse Contexts: Local and Global Perspectives.”* They presented compelling investigations situated in the context of racially and ethnically diverse in-school and out-of-school settings. Their studies brought to the forefront diverse local, national, and global perspectives, from the United States, India, and Korea that have shaped science education in important ways.

The second session was in response to past feedback from the pre-conference workshop. The co-chairs of the E&E Committee organized a session called *“Re-Imagining Our Research by Using New Theoretical Frameworks in Science Education.”* The session featured senior scholars who discussed the trajectory of their ideas as equity researchers, how they conceptualize a research and professional agenda, and how their research has taken on new meaning and focus by engaging in new theoretical or methodological approaches.

The third sponsored session was “Developing a NARST Code of Ethics.” An ad-hoc sub-committee was created to examine the NARST Policy on Harassment and to craft a Code of Ethics. In a special session facilitated by the sub-committee (Sarah Barrett, Brian Fortney, Matthew Weinstein, Julie Bianchini, Felicia Mensah, and Randy McGinnis), the Presidential team and NARST members worked in small discussion groups in crafting the code. The code discussion encompassed our collective thinking, intentions, and desire to develop a NARST code that is aspirational rather than prescriptive. A draft will be presented to the NARST Board in October.

A highlight of the conference is the annual Equity Dinner, which was held at Buca di Beppo, an Italian restaurant in downtown Indianapolis. We had more than 70 people in attendance for this dinner. A special tribute to Hedi Moscovici, a friend and dear colleague, was presented. We thank Penny Gilmer for assisting in the photo-history of Hedi and those who made comments about Hedi’s extraordinary acts of mentoring and service.

On-going and New Initiatives

During the early morning committee meetings, the E and E committee had a productive brainstorming session. Some exciting new ideas and initiatives are planned for the upcoming NARST Conference in Puerto Rico. Look for updates in the fall newsletter! We welcome all NARST members to support the many activities and initiatives of the Equity and Ethics Committee. *If you have suggestions or want to become more involved in the work of the E&E Committee, please contact me, fm2140@columbia.edu*

Chair:

Felicia Moore Mensah

Members:

Matthew Weinstein
Geeta Verma
Bhaskar Upadhyay
Rola Khishfe
Regina Wragg

Deborah Roberts-Harris
Seema Rivera
Irene Osisioma
Jacqueline Samuel
Cassie Quigley

INTERNATIONAL COMMITTEE

The NARST International Committee awarded 22 scholarships to doctoral and early career researchers from Turkey, Brazil, Canada, Israel, Cyprus, Thailand, Jordan, Sweden and Netherlands. Congratulations to Dilek Karisan, Nurdane Aydemir, Lydia Burke, Masha Tsaushu, Chris Tippet, Sevgi Aydin, Betul Demirdogen, Murat Aydemir, Mustafa Topcu, Mustafa Aktan, Chatree Faikhamta, Fatma Caner, Birgitta Berne, Meltem Irmak, Hanife Hakyolu, Constantinos Manoli, Ralf van Griethuijsem, Gabriela Viana, Saed Sabah, Kader Bilican, Natalia Ribeiro and Ozlem Oktay!

At the annual conference in Indianapolis, the Committee organised a session led by members of the European Science Education Research Association (ESERA). The session was chaired by Manuela Welzel-Breuer, the ESERA President and Sibel Erduran, with Robert Evans as the discussant. The Committee also promoted and supported the realization of a virtual presentation to enable colleagues from low-income countries to make presentations at the annual conference. The session was successfully implemented with contributions from South Africa, Nigeria and Ethiopia.

As a new initiative, there has been representation of the International Committee on the Membership and Elections Committee this year. We would especially like to acknowledge the efforts and time of the committee member, Deniz Peker for his contributions. The Committee would like to thank Marie Claire Shanahan and Hye-eun Zew for their contributions during their term as members, and welcome the new members, Aybuke Pabuccu and Deborah McGregor! We are particularly delighted to have the graduate student representative, Minsu Ha serving on the committee.



NARST International Committee



Chair – International Coordinator: Sibel Erduran, University of Bristol (13)

Members:

Issam Hafez Abi-El-Mona
Rowan University (13)

Deniz Peker
Virginia Tech (13)

Ismail Marulcu
Boston College (13)

Christina Siry
University of Luxembourg (14)

Ji Shen
The University of Georgia (14)

Meredith Anne Park Rogers
Indiana University (14)

Eva Erdosne Toth
West Virginia University (14)

Minsu Ha
The Ohio State University (14)

Aybuke Pabuccu
Abant Izzet Baysal University
Turkey (15)

Deb McGregor
University of Wolverhampton, UK (15)

Ex-Officio:

J. Randy McGinnis
University of Maryland

Bill Kyle
University of Missouri
St. Louis

PUBLICATIONS ADVISORY COMMITTEE

Carolyn would particularly like to thank Jan van Driel, former Co-Chair of the committee and the three committee members who rotated off this past year, Heidi Carlone, Martina Nieswandt and Deb Tomanek. Your hard work and service to NARST is sincerely appreciated.



NARST Teacher and Informal Educator Scholarships

The Publications Advisory Committee (PAC) was pleased to sponsor five scholarships of \$600 each for classroom teachers to attend NARST. Congratulations to:

Sandie Grinnell, *sponsored by Barbara Austin*

Lyn Gilbert, *sponsored by Meena Baglopal*

Masha Tsaushu, *sponsored by Tali Tal*

Megan Leider, *sponsored by Elizabeth Coleman*

John Scali, *sponsored by Zoubeida Dagher*

The teachers enjoyed meeting one another and discussing their scholarship. Masha Tsaushu shared the following reflection on her experience:

“As a high school teacher, teaching also pre-service and in-service teachers, attending NARST conference was of special interest for me. It was very interesting to learn how scholars from all over the world cope with challenges similar to those we face in Israel in all the three aforementioned areas. The presentations as well as the lectures in the general sessions I attended gave me new perspectives, that I will be happy to share with my colleagues in Israel. Thank you for your support that enabled me to take part in this experience.”

The teacher scholarship opportunity is available again for NARST 2013. Teachers and/or informal educators need to be nominated by a current NARST member. We strongly encourage NARST researchers to submit nominations for teachers with whom they work for next year. Please look for the call for nominations in October.

NSTA Reading List

Earlier in 2012, the PAC selected five JRST articles from the 2011 volume to be included on NSTA’s “Summer Reading List for Teachers.” The following five articles were selected for this year’s list on the basis of their relevance to classroom teaching. Congratulations to the following authors.

Carlone, H.B., Haun-Frank, J. & Webb, A.

Assessing Equity Beyond Knowledge—and Skills-Based Outcomes: A Comparative Ethnography of Two Fourth-Grade Reform Based Science Classrooms

Journal of Research in Science Teaching, 48 (5), 459-485

McElhaney, K. & Linn, M.

Investigations of a Complex, Realistic Task: Intentional, Unsystematic, and Exhaustive Experimenters

Journal of Research in Science Teaching, 48 (7), 745-770

Scalise, K., Timms, M., Moorjani, A., Clark, L., Holtermann, K. & Irvin, P.S.

Student Learning In Science Simulations: Design Features That Promote Learning Gains

Journal of Research in Science Teaching, 48 (9), 1050-1078

Bodzin, A.M.

The Implementation of a Geospatial Information Technology (GIT)-Supported Land Use Change Curriculum with Urban Middle School Learners to Promote Spatial Thinking

Journal of Research in Science Teaching, 48 (3), 281-300

Yerrick, R., Schiller, J., & Reisfeld, J.

“Who Are You Callin’ Expert?”: Using Student Narratives to Redefine Expertise and Advocacy Lower Track Science

Journal of Research in Science Teaching, 48(1), 13-36

Looking Forward to NARST 2013

The *Journal of Research in Science Teaching* will be celebrating its 50th Anniversary at the 2013 annual meeting in Puerto Rico! Please be sure to join the membership for a birthday bash on the beach! The PAC will be working on two sponsored sessions for NARST 2013 that will honor the JRST anniversary. One of these sessions will explore the views of contemporary researchers about which JRST articles have been the most influential on their work. The second session will feature historical trends and themes across the fifty years by former JRST editors.

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Chair:

Carolyn Wallace
carolyn.wallace@indstate.edu
Indiana State University (14)

Members:

James Minogue
james_minogue@ncsu.edu
Carolina State University (13)

Eric Wiebe North
wiebe@ncsu.edu
Carolina State University (13)

Tahsin Khalid
tkhalid@semo.edu
Southeast Missouri State
University (13)

Gili Marbach-Ad
gilim@umd.edu
University of Maryland (14)

Julia Plummer
jdp17@psu.edu
Pennsylvania State University (14)

Danielle Ford
djford@udel.edu
University of Delaware (14)

David Long
delong@valdosta.edu
Valdosta State University (15)

Anat Yarden
anat.yarden@weizmann.ac.il
Weizmann Institute (15)

Daniel Meyer
meyerd@iit.edu
Illinois Institute of Technology (15)

Graduate Student Members:

Kimberly Barss
kbarss@albany.edu
Mildred Ellie College (14)

Bryan Nichols
bryanhnichols@gmail.com
University of S. Florida (14)

JRST Co-Editor:

Angela Calabrese Barton
acb@msu.edu
University of Michigan

Joseph Krajcik
krajcik@umich.edu
University of Michigan

NEWS FROM NSTA



Kate Scantlebury
NSTA Representative to NARST

NSTA's 2012 Area Conferences

- Louisville, Kentucky | October 18–20
- Atlanta, Georgia | November 1–3
- Phoenix, Arizona | December 6–8

The 2013 Annual Conference *Next Generation of Science Standards*

San Antonio, Texas | April 11–14

Proposals for the 2013 national conference, which will focus on the “*Next Generation of Science Standards*,” were due by **April 15, 2012** and submitted at: http://science.nsta.org/sessions/proposal_submission.asp

NARST's Publications Committee has identified “good research worth reading” articles for NSTA's Summer Reading program for teachers at:

www.nsta.org/highschool/connections.aspx

The article summaries and links to the complete articles will be in the summer (July) issue of *The Science Teacher*. Within the next few weeks, NSTA will request proposals for the 2013 Research Dissemination Conference (RDC) that will be held as part of the national meeting in San Antonio, Texas. The RDC will focus on the research underpinning the “*Next Generation Science Standards*.”

RESEARCH COMMITTEE

Many of you will be aware that last summer NARST sponsored its second institute for doctoral students. Renamed last year as the Sandra K. Abell Institute for Doctoral Students, it was hosted jointly by BSCS and Penn State University and held at Colorado Springs. Approximately 40 students attended and the following words from two of them attest to the institute's tremendous success:

Stephen Norris
Committee Co-Chair

Maria Varelas
Committee Co-Chair



"I consider myself very lucky to have participated in the Sandra K. Abell Institute for Doctoral Students last summer. I was mentored by some of the foremost scholars in our field, who took the time to get to know me as well as my research interests and goals.

I also met other doctoral students who were at similar phases in their careers and we were able to share useful resources, ideas about research and writing, and words of encouragement. Perhaps the best outcome of my attendance is the network of lifelong friends and colleagues I have gained—not only those who have already been recognized for their work in our field, but also those of my 'generation' who are the future of science education."

Julianne A. Wenner, University of Georgia



"I am very fortunate and glad to have been selected to participate in the 2011 Sandra K. Abell Institute for Doctoral Students co-hosted by BSCS and Penn State. The time we spent together was intense but tremendously helpful in developing my orientation to academic research. The mentors were absolutely fantastic

giving up their time and energy to us, the upcoming science education researchers, and offering their expertise and encouragement. In addition to meeting and working with an outstanding team of faculty scholars, I developed many friendships with my graduate student scholar peers. I have already started encouraging fellow students at my home institution to be on the lookout for the application for the next Institute."

Takumi Sato, Michigan State University

These institutes depend for their success on the expertise, leadership, and generosity of NARST members. A team is needed to sponsor the institute (to plan, organize, and run it) and a group of highly skilled and knowledgeable mentors is required to work with students over the course of several days.

Look for the call from the Research Committee for proposals to host the next Sandra K. Abell Institute for Doctoral Students in the summer of 2013. Proposals will be due towards the end of August.

The theme for the 2009 institute was teacher education. In 2011, the theme was classroom-based research. Both institutes focused on a similar set of general objectives: helping induct students into the research practices of our field—research design, research methods, and research communication; initiating students into the science education research community and assisting them in finding a sense of place and belonging therein; and encouraging students to establish dialogue and networks within the science education community. You will have the advantage of the experience and formal evaluations of the two previous workshops to guide you as you put together your proposal.

The potential of the intensive institute format for promoting academic growth of students, mentors, and organizers is huge. In addition, the contacts established and networks created can positively affect the course of an entire career.

At the same time as encouraging you to submit a proposal, we do not wish to downplay the commitment, resources, and effort required to host a successful institute. It is a significant undertaking, but one clearly worth the effort. We look forward to hearing from you!

Co-Chairs:

Stephen Norris (13)

Maria Varelas (15)

Members:

Allan Feldman (13)

Richard Lamb (14)

Jim McDonald (13)

Jessica Thompson (15)

Toni Sondergeld (13)

Joy Barnes-Johnson (15)

Celestine H. Pea (14)

Hye-Eun Chu (15)

Senay Purzer (14)

Ex Officio:

Julianne Wenner (14)

Kate Scantlebury
Deborah Hanuscin (15)

AWARDS COMMITTEE

Xiufeng Liu
Committee Co-Chair

Patricia Friedrichsen
Committee Co-Chair

Distinguished Contribution through Research Award



Charles W. (Andy) Anderson
Michigan State University

Charles W. (Andy) Anderson has made significant contributions, in a broad range of ways, to research in science education. Fields he has contributed to include conceptual change, socio-cultural classroom studies, standards and assessment, learning progressions, and environmental literacy. Andy's work demonstrates a remarkable breadth through his search for encompassing models that bring coherency across the complicated systems of science education. In doing so, he has maintained a strong focus on the problems of practice that face all science teachers and learners. This, in turn, has led him to explore the insight that other fields such as psychology and sociology can provide to science education. Andy's research has been published in a broad array of journals, books, and other avenues and its value has been recognized through extensive support from national funding bodies. Citation analyses attest to the impact his work has had on science education.

Through his research, Andy Anderson has provided impressive leadership to science education in different ways. He has contributed significantly to the conceptualization and development of important research areas, most recently, learning progressions and environmental literacy. Much of his research has been conducted in difficult, noisy classroom environments that pose significant methodological challenges, yet that research holds out the promise of major impact on science education. Andy has taken on leadership positions in various national organizations and committees that have significant influence on science education research including the NARST presidency. Finally, his influence on research in science education continues through the many graduate students, post-doctoral fellows and colleagues he has mentored and collaborated with throughout his professional career.

Andy Anderson is a most worthy recipient of the 2012 NARST Distinguished Contributions to Science Education through Research Award.



Larry D. Yore
University of Victoria

Larry D. Yore's contributions to science education through research are founded on his vision of identifying the significance of language and literacy in doing, learning, and teaching science. These are marked by his persistence and consistency over a 40-year period, particularly in early years when he was a lonely researcher, and other themes were popular and even perhaps antagonistic to his vision. Larry developed an evolving, thematic program of study that integrates research in language and literacy (including reading, writing, representing, and metacognition) with science teaching and learning in authentic science and engineering environments. His work is marked by collaboration with scholars in other fields that inform and enrich both his and their disciplines, and by his insistence on the need to connect research with practice through his work with teachers at all levels of schooling.

Dr. Yore's leadership to science education through research is marked by his extraordinary efforts to educate and mentor students and colleagues locally, nationally, and internationally; he is a critical friend to whom people go, seeking help, encouragement and trusted collaboration. He has done this through the organization of conferences, symposia, and paper sets in Canada and elsewhere, and through his editorship of special issues in leading science education and language and literacy journals. He has played a vital role as a founding editor of the *International Journal of Science and Mathematics Education*, a journal now in the Social Sciences Citation Index. In this role, he has mentored scholars in Taiwan and other countries on preparing for publication their research reports about a wide variety of topics, and he has provided support to authors whose first language is not English.

Dr. Larry D. Yore is a most worthy recipient of the 2012 NARST Distinguished Contributions to Science Education through Research Award.

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Early Career Research Award

Victor Sampson

College of Education, Florida State University

The NARST Early Career Research Award recognizes Dr. Victor Sampson for his outstanding professional accomplishments. Dr. Sampson's record of research is exceptional making him highly respected as an emerging scholar in science education. Colleagues have described his research on scientific argumentation as transformative and innovative, having major influence on practice and marked by highly collaborative partnerships. His scholarly contributions are based on theoretical models supported by data, and with due consideration for how argumentation can be meaningfully situated in classroom science learning experiences. Dr. Sampson is an early career



scholar who has created an outstanding program of research that addresses important issues in science education reform. As a recipient of the Early Career Research Award of NARST: A Worldwide Organization for Improving Teaching and Learning Through Research, Dr. Sampson joins his predecessors in setting high standards for future awardees.

JRST Award

Julie A. Luft

College of Education, University of Georgia

Jonah B. Firestone

Fulton Institute and Graduate School of Education, Arizona State University

Sissy S. Wong

*College of Education
University of Houston*

Irasema Ortega

*College of Education
University of Alaska, Anchorage*

Krista Adams

College of Education and Human Services, University of Nebraska Lincoln

EunJin Bang

*College of Human Services
Iowa State University*

Citation:

Luft, J., Firestone, J. B., Wong, S. S., Ortega, I., Adams, K., & Bang, E.

Beginning Secondary Science Teacher Induction: A Two-Year Mixed Methods Study. (2011)

Journal of Research in Science Teaching, 48 (10), 1199–1224.



NARST Outstanding Doctoral Research Award



Melissa Braaten

School of Education, University of Wisconsin, Madison

Dissertation Title: *Developing Inquiry-As-Stance and Repertoires of Practice: Teacher Learning Across Two Settings*

Institution Awarding Degree: *University of Washington*
Advisor: *Mark Windschitl*

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Outstanding Paper Award at NARST 2011



Shelly R. Rodriguez

College of Natural Sciences, University of Texas at Austin

Julie Gess-Newsome

Department of Teaching and Learning, Northern Arizona University

Article Title: *Enhancing Teacher Knowledge and Pedagogical Reasoning: A Case Study of Cooperating Science Teachers that Mentor Preservice Teachers*

Call for 2013 Award Nominations

Nominees are invited for the following NARST 2013 awards which will be presented at the awards luncheon at the 2013 NARST Annual International Conference in Rio Grande, Puerto Rico.

NARST 2013 Distinguished Contribution through Research Award

NARST seeks to improve science education through research. To this end, the Association desires to recognize and reward individuals who have made significant contributions to, provided leadership in, and had impact on, science education through research. Research contributions may be of several types-including, but not limited to empirical, philosophical or historical research, evaluative studies, policy-related research, and studies reflecting new techniques to be applied in research.

The recipient of the Award should have contributed over a period of at least 20 years since the award of his or her doctorate. This award is the highest recognition NARST can bestow for contributions to science education through exemplary, high quality research.

Nominations for the 2013 Award are due not later than July 15, 2012 to the following address.

All members are encouraged to consider nominating a colleague for this award. Self-nominations are not permitted.

The award will be made to an individual who over a period of at least 20 years has:

- a) made a continuing contribution to science education through research;
- b) provided notable leadership in science education through research; and
- c) had substantial impact on science education through research.

All that is necessary to start the nomination process is for a NARST member to send a name with a letter (of no more than two-pages) supporting the nomination of the person.

Please send the names of nominees no later than **July 15, 2012** to **Jonathan Osborne** (Co-Chair with Reinders Duit) at osbornej@stanford.edu.

The procedures the committee will follow for this award are those currently specified in Policies & Procedures.

NARST 2013 Early Career Research Award

The NARST Early Career Research Award acknowledges contributions to science education through research by individuals during the five years immediately following receipt of the doctoral degree. To qualify for the award this year, the nominee must have received the doctoral degree on or after January 1, 2007. All NARST members are encouraged to consider nominating an eligible and deserving early career member.

Nominations for the award must be accompanied by the following supporting material:

- a) A letter of nomination which discusses the nominee's impact on the field;
- b) The nominee's vita;
- c) A two-page summary of the nominee's research interests, prepared by the nominee;
- d) Three of the nominee's best papers; and
- e) Two additional letters of support to be sent separately. The supporting letters need to discuss the context and significance of the nominee's scholarship so that the accomplishments shown on the nominee's vita may be better understood.

Nomination materials should be received by the Committee Co-Chair, **Grady Venville** at grady.venville@uwa.edu.au (co-chair with **Carol Stussey**) no later than **November 15, 2012**.

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NOTE: Each candidate is reviewed independently by eight committee members. If you are interested in seeing the rating sheet that is used in this process, please request it directly from the Co-chairs of the Committee. All nomination packages and materials should be sent electronically in PDF format.

NARST 2013 Outstanding Doctoral Research Award

The NARST Outstanding Doctoral Research Award Selection Committee invites all current NARST members who completed a dissertation within the 15 months prior to September 15, 2012 to submit an expanded ten-page abstract (in PDF format) to the committee for consideration for the 2013 NARST Outstanding Doctoral Research Award. Submissions are sought from as wide a field of candidates as possible, inclusive of gender, age, and ethnicity.

Judging will occur in two rounds. The first round of judging will be based on the ten-page abstract. From these, a small group of applicants will be asked to submit one copy (in PDF format) of the complete dissertation. The final decision of the committee will be based on the complete dissertation. All applicants will be notified of their status after the first round of judging is completed in early November.

The committee welcomes doctoral dissertations from all research perspectives. The ten-page abstract should be structured to describe clearly the following:

- (1) purpose or objectives of the study;
- (2) conceptual/theoretical framework;
- (3) research approach/methods;
- (4) data sources and methods of analysis;
- (5) findings or results;
- (6) conclusions and implications;

AND

- (7) significance of the study. It is suggested that nominees model their abstracts after conference proposals submitted for NARST: Abstracts should foreground rationale, methods, and results.

Judging in both rounds (for abstracts and dissertations) will be based on the following three central questions:

- (1) Is the research question(s) being asked of importance to the community of science educators?
- (2) Is the research approach and its implementation thorough and appropriate for the research question(s) asked?

AND

- (3) Are the results and conclusions appropriate for the context of the study? Specific criteria considered in relation to these questions include: The significance

of the research problem/area; conceptual/theoretical background; thoroughness of the research approach and methods; identification of conclusions/outcomes and their implications for science education; clarity and coherence of communication; and overall originality or creativity. In the past successful applicants have been those who were able to make a case for the significance of their study to the science education community as a whole and/or who convinced the reviewers of the originality of the questions asked or methods employed.

Submission Procedure: An all-electronic submission process will be used. Persons wishing to be considered for the award should submit an e-mail with the following three attachments (in PDF format):

- (1) one file containing a ten-page, double-spaced abstract (margins limited to one inch all around using 12 cpi font);
- (2) one file containing a five-page abbreviated bibliography;
- (3) one file containing a cover sheet which includes the author's name, address where they can be reached through December 2012, e-mail address, telephone and fax numbers, title of the study, the name and address of the institution where the dissertation was completed, a list of the members of the dissertation committee, and the date the dissertation was passed. This cover sheet should be signed by the major advisor/professor/supervisor or chair of the dissertation committee. An electronic signature is acceptable.

Alternatively, the dissertation supervisor/director can send an e-mail to the Chair of the Outstanding Doctoral Research Award Selection Committee endorsing the application and attesting to the accuracy of the information provided in the application. (Note: The title of the study should appear on the first page of the abstract, but the author's name and other identifying information should appear **ONLY** on the cover sheet.)

An e-mail with all three attachments must be received by **Judith Lederman** at ledermanj@iit.edu and **Meg Blanchard** at meg_blanchard@ncsu.edu no later than **September 15, 2012**. We regret that the committee will be unable to consider incomplete or late applications.

Questions regarding this award should be e-mailed to the co-Chairs of the Committee:

Judith Lederman at ledermanj@iit.edu

AND

Meg Blanchard at meg_blanchard@ncsu.edu

EXTERNAL POLICY AND RELATIONS COMMITTEE

The External Policy and Relations Committee (EPRC) works to support increased awareness among NARST members about national and international policy issues relevant to science education. The Committee also works on efforts related to fostering the development of partnerships and collaborations with professional organizations and groups concerned with the quality of science teaching and learning.

EPRC's focus over the next year will be in 4 areas:

- (a) initiating efforts to create a structure to allow NARST to become more actively engaged in policy issues at the national and international level;
- (b) co-sponsoring one more relevant policy sessions at the 2013 national meeting in collaboration with the Policy Strand (15);
- (c) with support from the new NSTA liaison, hosting a NARST booth at the 2013 NSTA meeting;

AND

- (d) continuing the on-going effort to develop Memorandums of Understanding agreements with key affiliates.

Building the Capacity for NARST to Be More Actively Engaged with Science Education Policy

NARST as an organization is committed to playing a greater role in public debates related to science education issues; we wish to make the expertise and voice of NARST members more relevant to science education policy at home and abroad. EPRC committee members began exploring strategies for how best to support this commitment. Over the course of this year some initial strategies will be put in place that would enable NARST as an organization to have a higher profile in the policy arena. In particular, we will be framing a mechanism to allow NARST to make public statements on issues where our research-focused expertise in science education could and should inform public policy debates. We welcome suggestions from the NARST community on this effort as well as any NARST members wishing to become directly involved in the creation of this process. Interested individuals should contact EPRC Co-Chair, John Falk at falkj@science.oregonstate.edu.

Co-Sponsored Policy Session at NARST 2013

EPRC co-sponsored several policy-related sessions at the most recent NARST meeting in Indianapolis. The EPRC committee has generated a list of potential sessions for the 2013 NARST annual meeting in Puerto Rico and is working with members of Strand 15, the Policy Strand to finalize details. Suggestions for future policy-related sessions are always welcome, please email either Sarah Carrier sarah_carrier@ncsu.edu or John Falk at falkj@science.oregonstate.edu.

NARST at NSTA 2013

NARST will once again host a booth at the 2013 NSTA annual meeting. We use the booth as a means to raise our visibility among K-12 classroom teachers. Thanks so much to all the NARST members who helped staff the 2012 booth. This is a great

way to provide service to the organization and work to improve connections between NARST and the membership of NSTA! If you anticipate going to NSTA next year in San Antonio and are interested in helping to staff the booth, please email either Meredith Houle mhoule@mail.sdsu.edu or EPRC Co-Chair, John Settlage at john.settlage@uconn.edu.

Policy for Affiliation with NARST

NARST should have meaningful affiliations with other science education organizations. Our recently-approved policy regarding affiliations indicates that affiliations might work toward collaborative organization of conference sessions, writing of position or policy statements, development of research studies, sponsorship of professional learning communities—or other joint ventures we haven't thought of yet! In 2010/11 EPRC has made great strides in reviewing all existing affiliations and developing revised MOUs with existing affiliate organizations. EPRC is working to finalize the outstanding MOUs in a timely way and then consider expanding relationships with other organizations. As above, suggestions are welcome. Please direct these to John Falk at falkj@science.oregonstate.edu.

If you have any suggestions, comments, or questions about any of the above activities or have an interest in becoming involved in the External Policy and Relations Committee, please email one of the EPRC Co-Chairs John Falk at falkj@science.oregonstate.edu or John Settlage at john.settlage@uconn.edu, or any of the EPRC members.

Co-Chairs:

John Falk | falkj@science.oregonstate.edu (13)
John Settlage | john.settlage@uconn.edu (15)

Members:

Chris Wilson | CWilson@bscs.org (13)
Biological Sciences Curriculum Study
Meredith Houle | mhoule@mail.sdsu.edu (13)
San Diego State University
Tim Scott | tim@science.tamu.edu (13)
Texas A&M University
Jon Pedersen | ep@unl.edu (14)
University of Nebraska-Lincoln
Deborah Tippins | debtippins@hotmail.com (14)
The University of Georgia
Uri Zoller | uriz@research.haifa.ac.il (14)
Haifa University - Oranim
Katie Van Horne | katievh@uw.edu (14)
Carla Johnson | carla.johnson@uc.edu (15)
Sarah Carrier | sarah_carrier@ncsu.edu (15)
Eugene Judson | Eugene.Judson@asu.edu (15)

Ex-Officio:

Executive Director: Bill Kyle | bill_kyle@umsl.edu
President (current): Sharon Lynch | slynch@gwu.edu