

# E-NARST NEWS

National Association for  
Research in Science Teaching

*Organized to improve science  
teaching through research*

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## Message from the President

*Penny J. Gilmer, NARST President*

### Allowing the human aspect in our profession to become more visible

I look forward to this coming year as your NARST President. Throughout my time in NARST, since joining in 1993 and especially during this past year as President-elect, I have learned a considerable amount about our organization. I appreciate all the work NARST members exert towards advancing our profession, by conducting our research, serving on NARST committees, reviewing NARST proposals, publishing our research, and implementing best practices that we learn from research.



Penny J. Gilmer, President

I have four goals for this coming year in my role as NARST President:

First, I want to continue to make the decisions and actions of the NARST Board and NARST committees more transparent to our membership. Everyone ought to know and understand the business we conduct in NARST, so that all feel included in NARST and want to participate and contribute to the advancement of our profession and the mission of NARST. Initially, I began working toward this goal by sharing our Board activities through the new format of E-NARST News while serving as its editor for three years as the Chair of the Publications Advisory Committee. Currently, each NARST Committee has an article in *E-NARST News* at least once per year. Additionally, I started adding photographs of NARST members as well as cities where we had our last annual meeting or where we will have our next meeting to the *E-NARST News*. Providing images, I believe, allows the human aspect in our profession to become more visible. (Also, I love photography, so I enjoy taking and sharing the photographs).

Second, I want to encourage equity in all aspects of NARST, from serving on the NARST Board or on committees, to being strand coordinators or presenting at NARST. I have supported the Equity and Ethics scholarships since their inception and the Equity Pre-conference Workshop held each year. We doubled the

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number of Equity and Ethics scholarships for this past year, bringing more minority scholars to NARST. At our Equity Workshop in 2007, we had over 50 attendees, more than ever before. I attribute this achievement to the hard work of our recent and current Equity and Ethics Committee Chairs, Okhee Lee and Angela Calabrese-Barton, as well as that of their committee members. At our annual Equity dinner, we had over 80 NARST members attend. Each year I have seen this dinner grow. This growth is a great step forward in the push for equity, and as a woman biochemist who has dealt with inequity in my profession, this issue means a great deal to me.

Third, I would like to increase the influence of the international community in NARST. We can learn so much from each other as we confront numerous issues throughout the world. In committee appointments for this coming year, I tried to appoint more international members to standing committees, pushing our committees closer to the percentage of our international membership. Also, I have supported the International scholarships since their inception. With the growing number of these scholarships, we are, thereby, increasing the representation of international members at NARST. Through collaboration and communication with our colleagues in different countries, we can only gain insight, as I learned through my second doctoral research through Curtin University of Technology in Western Australia.

Fourth, your new Presidential team, President-elect Charlene Czerniak, Past-President Jonathan Osborne, and I, along with our new Executive Director, Bill Kyle, want NARST more involved in shaping science education policy within the United States. Our theme for the 2008 annual NARST meeting in Baltimore, MD is Impact of Science Education Research on Public Policy. For the 2008 meeting, we encourage you to infuse policy issues into the 14 strands. Bill also will work with the Board in order to make shaping science education policy in the US one of our primary goals. Charlene and I attended the Council for Science Society Presidents meeting, as representatives of NARST. We can now bring this information we learned to the table on shaping science education policy within the U.S. I attended a powerful session by Judy Dori and

*I want to encourage equity in all aspects of NARST, from serving on the NARST Board or on committees, to being strand coordinators or presenting at NARST.*

her associates at NARST 07 on shaping science education policy in their country, Israel. Similarly, I hope that our colleagues in other countries will present papers on mechanisms that influence science education policy through research.

Please contemplate your own proposal(s) you will be submitting for the 2008 NARST annual

meeting in Baltimore, MD. Deadline for proposals is August 15<sup>th</sup>, 2007. The conference starts March 30<sup>th</sup> and ends April 2<sup>nd</sup>. We will be using a similar procedure to last year, with all information submitted electronically. As in this past year, you will only be allowed one submission as first author in each of the following types of submission:

1. Stand-alone paper, or paper within a related paper set
2. Interactive poster
3. Symposium

I want to warn you that if you try to submit two proposals in the same category under your name, the first one will be removed from the system. If someone else needs help, show the person how to submit the proposal under his/her name, not your own.

Having been in charge of the NARST program for our 2007 annual meeting, I noted the higher acceptance rate of related paper sets and symposia compared with stand-alone papers. This rate occurred, I believe, because those people working together to prepare a related paper set or symposia find their focus, as they develop their proposal and get feedback on improving the proposal before submission. Therefore, I encourage you to try one of these types of submission for this year or continue to do so. Think of presentations that you heard in person or read from our *NARST Proceedings 2007* CD, which are related to ideas you want to present in 2008. Try contacting the authors to see if they would like to be part of the related paper set or symposium you are organizing. I also encourage you to present various points-of-view in a symposium on theoretical perspectives, but remember to include speakers who represent us equitably. Sessions can be more stimulating with a variety of perspectives, also including those from other countries. We can all learn from each other.

I look forward to working with you, the strand coordinators, the members of other NARST committees, and the NARST Board towards reaching these goals. Thank you for your confidence in electing me to this office. I will do my best to communicate with you and the Board to help us reach the NARST mission:

The National Association for Research in Science Teaching (NARST) is a worldwide organization of professionals committed to the improvement of science teaching and learning through research.

## *Meet the New Members of the NARST Leadership Team*

*Penny J. Gilmer, NARST President*

As your new NARST President, I want to introduce our new President-elect, three new Board members, International Coordinator, and Executive Director.



Penny Gilmer, President with  
President-Elect Charlene Czerniak



- **Reinders Duit**, Professor of Physics Education at the IPN - Leibniz-Institute for Science Education in Kiel, will be an excellent representative for both our science content and international interests. His research focuses on linking analytic issues on science content to empirical research on learning and teaching.
- **Carla Zembal-Saul** is currently an Associate Professor of Science Education at The Pennsylvania State University where she has been a member of the faculty for ten years. Her research focuses on how elementary teachers develop their pedagogical content knowledge for learning science.

- **Charlene Czerniak**, our President-Elect, is a Professor of Science Education at The University of Toledo. Charlene directs the Office of Research Collaboration, a collaborative research office in Northwest Ohio designed to support collaborative research and sponsored funding. She has been a NARST attendee since 1986 and we are delighted to have her as our new President-elect.
- **Valarie Akerson** is Associate Professor of Science Education at Indiana University, where she is the director of teacher education. Her research focuses on professional development and preservice education of elementary teachers. She is a former elementary teacher, and someone who has contributed to NARST for over 12 years.

- **Mei-Hung Chiu** was elected as the new International Coordinator. She is currently a professor in the Graduate Institute of Science Education at the National Taiwan Normal University, but no stranger to the United States, having done a masters and doctoral degrees at Harvard University. She is a chemistry educator focused on understanding how children construct mental models of chemistry.



- **Bill Kyle, our new Executive Director**, has held the E. Desmond Lee Family Professor of Science Education chair at the University of Missouri- St Louis since 1996. Bill knows our Association well having been the editor of *JRST* from 1994-1999. He was also the winner of the award for the best paper published in *JRST* in 1980. He has been extensively involved in the workings of NSTA and NSF.



Bill Kyle, new Executive Director  
3rd from left, with members, Estelle  
Gaugher, Marissa Rollnick, and  
Vince Lunetta

The Board is confident that we have an Executive Director and Presidential team to take this Association, which now stands on strong foundations, forward. In particular, our goal is to achieve greater recognition for the work of our members and the implications of our work for policy and practice. We need to start here in the United States but also to build the standing of NARST internationally.

I also want to thank our outgoing Past President **Jim Shymansky**; outgoing Board members **Fouad Abd-El-Khalick**, **Pamela Fraser-Abder**, and **Julie Gess-Newsome**; and outgoing International Coordinator **Saouma BouJaoude**. You all served NARST well for these past three years. Thank you!



Outgoing Past-President Jim  
Shymansky with Board members  
Dana Zeidler and Fouad Abd-El-  
Khalick after an all day Board of  
Directors meeting.

# *Invitation to Submit Proposals for NARST 2008 Annual International Conference*

*Penny J. Gilmer, President and Charlene Czerniak, President-elect*

As Co-Chairs of the 2008 NARST Annual International Conference, we would like to welcome you to submit proposals for review. The conference takes place from Sunday, March 30<sup>th</sup> to Wednesday, April 2<sup>nd</sup>, in Baltimore, MD. The preconference workshops will be on Sunday morning, with the conference starting at noon on the 30<sup>th</sup> and extending until 2 PM on the 2<sup>nd</sup>.

Instead of having the Awards Banquet as the last event on the last day of the conference as we have done earlier years, we thought if we had the banquet earlier on Tuesday at lunch, more NARST members could attend. Also we would have time to congratulate our NARST award winners during the rest of the conference.

Our conference venue is the **Marriott Baltimore Waterfront Hotel** at 400 Aliceanna Street, Baltimore, MD 21202 [telephone: 410-385-3000]. Visit the hotel's Web site for a photo tour of the beautiful hotel and see the setting for yourself. We will be located right on the lovely Baltimore Inner Harbor overlooking the Baltimore harbor. More than a decade ago Baltimore completely reconstructed the entire waterfront area, so the setting is gorgeous. Baltimore is one of the world's 25 top cities to visit, so we are fortunate to have this city as the location of our annual conference.

The theme for the 2008 conference is *Impact of Science Education Research on Public Policy*. We chose this theme because we want NARST members and our organizational leadership to become more involved in getting our worthy research in science teaching and learning to impact public policy. We are at a critical time in the world since we want our citizens to have an understanding that we learn using the processes of science and that technology is the application of science.

For the 2008 conference, we will utilize the same research strands as we did for the 2007 conference. (See next page for a description of these strands.) As the Research Committee analyzes our members' responses to their questionnaire, we may see some changes to the strands in the 2009 conference. Therefore, you ought to consider which of the 14 strands your proposal would best fit. The online system that we utilized for the 2007 conference will be similar this year, but we have suggested improvements to our Web designers from Podi.

The *Call for Proposals* became available online on Friday, June 15<sup>th</sup>, and proposals are due by midnight on Wednesday, August 15<sup>th</sup>, 2007. Similar to last year, each person may submit only one paper proposal (either as a stand-alone paper or a paper within a related paper set), one poster proposal, and one as a symposium participant, as a first author. In addition, you may be a second author on any other stand-alone paper, or paper within a paper set, or a poster. Please be sure to enter your name in the same way for any proposals, whether first or later author, as our software can only prevent conflicts in scheduling if names are spelled the same way, each time in the program.

Additionally, we have set up the Web site for NARST proposal submission so if you try to submit more than one stand-alone paper, for instance, your entry of the 2<sup>nd</sup> one would override the first one that you uploaded. Therefore, do not enter other people's proposals using your NARST login name! The first author for each proposal is the one who should perform the uploading. One advantage of our system is that you may go back and revise the original proposal you submitted, right up until the deadline. After the deadline, you will be blocked from revising.



Also be sure to keep to the page limitations indicated for each type of proposal. Page limitations do include references. We want to emphasize that you need to upload your proposal as a pdf file. For submission, your proposal needs to be “blind” (meaning your name or affiliation are not to appear within the text or headers, and you only indicate any reference to your own research, for example, by “Author, 2004,”) so assessors do not know your name or affiliation.

Our team of strand coordinators will be seeking assessors of submitted proposals so that we can review these proposals in a timely fashion. The entire review system is on-line as well. Please volunteer to help as an assessor. We posted the list of strand coordinators on June 15<sup>th</sup> when we posted the Call for Proposals.

You will be notified that your paper, related paper set, symposium or poster is accepted or not by November 2007. The strand coordinators will group accepted stand-alone papers, and accepted symposia and related paper sets for each strand. The posters will be presented all at the same time, as we did in 2007. Next, DMG will use our TTMaker software to put the schedule together. You will receive word by e-mail when the draft program is available. Please check the schedule to be sure that you have no conflicts.

We will have the President’s reception on Sunday night to welcome all NARST members and other attendees at our conference. The city of [Baltimore](#) has much to offer us in terms of recreation. The [Baltimore Orioles](#) Baseball Stadium is near our hotel, and we will be checking if we can order some group rate price to attend a game, if there is one on Monday or Tuesday night. Other possibilities include a group excursion to the [National Aquarium](#) or the [Maryland Science Center](#). Of course, we can count on our FARSE group to offer us a relaxing night of spoofs and then more fun on the other evening. If you live in the Baltimore area and would like to be part of suggesting local arrangements, please let us know.

If you do have suggestions, please contact one of us: [gilmer@chem.fsu.edu](mailto:gilmer@chem.fsu.edu) or [charlene.czerniak@utoledo.edu](mailto:charlene.czerniak@utoledo.edu). The Presidential team, the entire NARST Board, our Executive Director, and the DMG staff are looking forward to seeing you again in Baltimore, MD in 2008!

#### Hyperlinks:

[Marriott Baltimore Waterfront Hotel](#)

<http://www.marriott.com/hotels/travel/bwiwf-baltimore-marriott-waterfront/>

[City of Baltimore](#)

<http://www.ci.baltimore.md.us/visitor/index.html>

[Baltimore Orioles](#)

[http://baltimore.orioles.mlb.com/index.jsp?c\\_id=bal](http://baltimore.orioles.mlb.com/index.jsp?c_id=bal)

[National Aquarium Baltimore](#)

<http://www.aqua.org/>

[Maryland Science Center](#)

<http://www.mdsci.org/>



# NARST Strand Descriptions

1. *Science Learning, Understanding and Conceptual Change*  
How students learn for understanding and conceptual change.
2. *Science Learning: Contexts, Characteristics and Interactions*  
Learning environments, teacher-student and student-student interactions, and factors related to and/or affecting learning.
3. *Science Teaching—Primary School (Grades preK-6):*  
Characteristics and strategies, teacher cognition, content knowledge, pedagogical knowledge, pedagogical content knowledge, instructional materials and strategies.
4. *Science Teaching—Middle and High School (Grades 5-12):*  
Characteristics and strategies, teacher cognition, content knowledge, pedagogical knowledge, pedagogical content knowledge, and instructional materials and strategies.
5. *College Science Teaching and Learning (Grades 13-20):*  
Instructor cognition, content knowledge, pedagogical knowledge, pedagogical content knowledge, student understanding and learning, and conceptual change at postsecondary level.
6. *Science Learning in Informal Contexts*  
Learning and teaching in museums, outdoor settings, community programs, communications media and after-school programs.
7. *Pre-service Science Teacher Education*  
Pre-service professional development of teachers, pre-service teacher education programs and policy, field experience, and issues related to pre-service teacher education reform.
8. *In-service Science Teacher Education*  
Continuing professional development of teachers, in-service teacher education programs and policy, and issues related to in-service teacher education reform.
9. *Reflective Practice*  
Teacher inquiry, action research, self-study practices, and transformative education.
10. *Curriculum, Evaluation, and Assessment*  
Curriculum development, change, implementation, dissemination and evaluation, including alternative forms of assessment of teaching and learning.
11. *Cultural, Social, and Gender Issues*  
Equity and diversity issues: sociocultural, multicultural, bilingual, racial/ethnic, and gender equity studies.
12. *Educational Technology*  
Computers, interactive multimedia, video and other technologies.
13. *History, Philosophy, and Sociology of Science*  
Historical, philosophical and social issues of science as related to science education.
14. *Environmental Education*  
Ecological education; experiential education; education for sustainable development; indigenous science.

# *In Praise of Armchair Science Education*

*Jonathan Osborne, President 2006-2007*

## **A Conference Speech delivered at the 2007 annual meeting Awards Banquet in New Orleans**

I must begin this speech by thanking those people who have given their time and energies to the Association for the past 12 months. A particular thanks goes to all those who have worked on the committees that decide the awards; to those who have acted as reviewers for this conference and to the retiring board members – particularly the past President. For, whether you agree with Jim or not, and Jim knows that we do not always agree, he has always put the interests of the Association, its members and its work to the fore. Jim, you may have been a thorn in the Board's side sometime but it helps to have someone perform that function and ask yourself why we do what we do. Thank you very much for the work you have done for the Association, and we are sure you will continue to take a strong interest in its affairs for years to come.

And now to what I have to say. I suppose the first thing to say after last year's talk, is that this is a hard act to follow. May I assure you, just in case you are wondering, is not my intention to provoke you. Rather, my life is full of more modest ambitions – like hoping I have something of sufficient interest to stop you falling asleep after your conference lunch.

Part of the brief of such talks is to give you a kind of overview of the state of the Association. I am not going to dwell long on that but, in short, you will be aware that we have shifted all the running of the association to the Drohan Management Company. Like any relationship it has taken time to establish and we have had our ups and downs. Hopefully all you have noticed is the ups... and we have attempted to deal with the downs. Yes, there will be a new web site and, yes I promise you, it will not be represented by an ammonite fossil which is perhaps rather apt when it comes to our web site. All I can tell you is

watch this space – it will arrive. In terms of membership we have about 16-1700 members, one fourth of whom are from outside the US and we have a strong and vibrant community with lots of new, young members joining.

Financially, we are in a good state with nearly three quarters of a million dollars in the bank. And I know what you are thinking – if that is so, why can't they provide a better lunch than that which I have just had. There is a very simple answer to that which is that we have always run the conference on the principle that it is unfair to ask the members who don't go to subsidise the meals of those who do go. However, what we can do is help more people to come here either on one of our international scholarships or on one of the bursaries provided by the Equity and Ethics Committee.

As the existing Executive Director's term of office was up, in considering what we wanted we have also realized that we must have an Executive Director who promotes the Association, rather than being preoccupied with internal administration. I am, therefore, delighted to tell you that in response to our advertisement we had a strong field of applicants, all of whom were appointable. The man we have decided to appoint is Bill Kyle. For those of you who don't know him, Bill has held the E. Desmond Lee Family

Professor of Science Education chair at the University of Missouri, St Louis since 1996. Perhaps, more importantly he knows the Association well having been the editor of JRST from 1994-1999. He was also the winner of the award for the best paper published in JRST in 1980. He has been extensively involved in the workings of NSTA and NSF.

In his vita he writes:



Jonathan Osborne congratulated by  
Jim Shymansky and John Tillotson

I am particularly interested in the socio-cultural, political, and economic issues associated with schooling in high poverty communities and the prospects for equity in the process of schooling. Since 1982, my work has focused upon high poverty urban communities in the US, as well as high poverty urban and rural communities in developing countries. More recently, I have been engaged in community-based transformative education projects in rural communities in sub-Saharan Africa.



Jonathan Osborne and  
John Tillotson

The Board is confident that we have an Executive Director to take this Association, which now stands on strong foundations, forward. In particular, to achieve greater recognition for the work of its members and the implications of its work for policy and practice. We need to start here in the U.S., but also to build the standing of NARST internationally. Will you, therefore, join with me in welcoming Bill Kyle as our new Executive Director.

And whilst we are in the process of welcoming people, we have said goodbye to three board members, our International Coordinator and last but not least, John Tillotson, our Executive Director.

So that is the State of the Association—but what of the state of science education and more importantly for this association, the state of research in science education? To answer that question – the thesis of my talk is an argument in praise of armchair science education.

It is worth remembering that 50 years ago was 1957 – the year in which scientists and engineers in a country thousands of miles from here were about to have an impact on the lives of everyone then sitting in this room when, on October 4th 1957, the then USSR launched Sputnik 1, the world's first artificial satellite. The event, led directly and indirectly to many of the major changes in science education that we have experienced as students, teachers, researchers, curriculum developers or policy makers.

Fifty years later it is worth pausing and asking have we gone forward? Is the state of science education and is the state of research in science education in a significantly better state? The innovations that emerged from Sputnik – in this country, PSSC Physics; Chem Study; and the Biological Sciences Curriculum Study. At the elementary level, there was the Elementary Science Study, known as

ESS; the Science Curriculum Improvement Study, known as SCIS, and Science-A Process Approach, known as S-APA. In the UK it led to new curricula in physics, chemistry and biology sponsored by the Nuffield Foundation. Did they succeed? As any Monday morning quarterback will tell you – hindsight is a wonderful thing. The answer depending on where you stand is possibly. If you want to take the optimist's

view, working within the existing structures, they offered a new vision of what it was possible to do. Eric Rogers, the American architect of Nuffield Physics argued that what he wanted Nuffield Physics to do was to offer a vision of what it mean to be a 'scientist for a day'. There were two problems with his vision though – problems which I still think we suffer from today:

First his vision of what it meant to be a scientist was a very narrow one based predominantly in the exact sciences of physics and chemistry and a hypothetico-deductive methodology. Nobody who has studied the vast literature about the nature of science – what is now more usefully termed (at least in the UK) – how science works can say that that is a comprehensive representation of science. As a research community, thanks to the work of many people such as Rick Duschl, Norm Lederman, Michael Matthews and others I think we do have a better vision of what might constitute an education about science.

The second problem embodied in his statement was a naïve conception of pedagogy. This was the assumption that the learning of science and the doing of science are one and the same thing. This is a dangerous assumption as they are clearly not. The practice of science is the search for knowledge to unanswered questions that we have about the material world. As James Watson, one of the discoverers of DNA, so elegantly argued when explaining to his sister why the search for the genetic code mattered so much 'No one knows anything. This is off the map. Ch 1, page 1, life reproduced life. How? Secret of Creation. Worth a Nobel prize'. The task of science education is different. Its role is to construct in the young student a deep understanding of a body of existing knowledge. In doing so, it needs to show why this knowledge is valued; that it was hard won; and that science is a creative process – that it offers you the opportunity to free yourself from the shackles of received wisdom by creating your own knowledge. However, that is

not the same as the doing of science and there is a clear line in the sand that needs to be drawn between the two activities – a line which I think the American emphasis on teaching science through inquiry (to use your pronunciation – you say inquiry, we say enquiry) sometimes forgets.

Fifty years later it is worth pausing and asking have we gone forward? Is the state of science education and is the state of research in science education in a significantly better state?

So where then, did the reforms of the sixties fail? My answer to that would be in the third of the triumvirate of curriculum, assessment and pedagogy that forms the basis of any teaching and learning experience – that is in the pedagogy. Many of the Nuffield notions of pedagogy rested on the oft-repeated Confucian mantra – ‘I hear and I forget, I see and I remember, I do and I understand’. Even the ideas of Piaget came too late to be influential on these reforms. Whatever you may think of it, the work of the past 40 years – the application of the ideas of Piaget, the constructivist revolution and now the turn to socioculturalism and discourse have all transformed the research community’s notion of what it means to learn and thus to teach science. In simplistic form, what was missing from the notions of pedagogy is the reading, talking and writing that we now see as essential.

The real struggle, however, lies in the classroom where I think it is fair to say that school science is arguably one of the last surviving authoritarian socio-intellectual systems with a teaching style which is over-reliant on information transmission and, until recently, curricula whose primary social function was that of training and selecting a future generation of scientific research workers. Such a cultural practice does not naturally fit with the values and goals of young people. This is particularly true for students whose career aspirations lie outside of science, many of whom are female and who do not see science qualifications as a means of realizing their personal goals or identity.

One of the most striking pieces of data about the state of school science is the survey undertaken by Svein Sjøberg for his Relevance of Science Education project of students’

attitudes to school science in over 20 countries. Student ratings to the question ‘I like school science more than other subjects’ get increasingly negative the more developed the country. Indeed there is a 0.92 negative correlation between this data and the UN index of human development. Indeed, it is Norway, Svein’s own country that has the most dramatic problem. What the data tell us though is that the ‘flight from science’ of contemporary youth is something deeply cultural.

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Like all good research, some useful insights come out of this work. The questionnaire asks girls and boys to rate what topics, from a list of 108 items, they would most like to learn about in science. There were no less than 80 statistically significant differences. What were the boys top five? Explosive chemicals; how it feels to be weightless in space; how the atomic bomb functions; biological and chemical weapons; and black holes, supernovae and other spectacular objects in space. No surprises there then – other than to invite the question of what is it about the male of the species that they are so obsessed with death and destruction. What were the girls top five? Why we dream when we are sleeping and what the dreams may mean; cancer – what we know and how we can treat it; how best to perform first-aid and use basic medical equipment; how to exercise to keep the body fit and strong; and sexually transmitted diseases and how to be protected against them. Ask yourself which of these lists school science currently presents? The enduring failure to increase the participation of girls in the physical sciences remains one of the intractable problems that we still need good answers to. In essence, this is one of our holy grails.

So these are some of the failings that research has failed to answer, or at least contribute to an answer.

But this brings me to my final point. What I think we need to do is to a bit more is stand and stare, or just simply sit and stare. Basically, I want to make a case for a bit more armchair science education research. What I mean by that is epitomised for me by a student question to a colleague who is an educational psychologist – Guy Claxton who had just given a seminar. If you have never read any of his

writings or heard him speak then I would commend him to you. The strange thing about Guy Claxton is that he is an educational psychologist who has never collected one piece of data. At the end of a seminar, this student had the temerity to say – ‘What you have just been talking about is really interesting – tell me, have you ever collected any data on that?’ What was Guy’s response? ‘Good God know, there is enough data out there in the world without me going out there and collecting any more.’

In that statement, I think there is an important message. As you look around you will see our output grows. There is *JRST* which has, I believe, 300 extra pages this year, *IJSE* which now publishes 15 parts a year, *Science Education*, *Science and Education*, the *International Journal of Science and Mathematics Education* and now *Cultural Studies of Science Education*. Most of this we can only read selectively. Add to this, the voluminous Handbooks such as the one that Norm Lederman and Sandy Abell recently edited and one begins to feel a bit like the Ancient Mariner – data, data everywhere and not a thought to think.

Out of interest, and in the spirit of my thesis, I collected, from my hotel room in Chicago last week, some empirical data from last 6 editions of three science education journals this year – *JRST* (of course), *Science Education* and *IJSE*. Looking at the abstracts and ignoring special issues, I categorised the papers as either reviews, empirically based, or theoretical/position papers. The findings? 3% were reviews, 88% were empirical and 9% theoretical position papers. The question I ask is - isn’t it time as a field we engaged in a process of assimilating the meaning of what we have. Clearly such review papers are wanted. Put the words review and science education into Google Scholar and what are the top hits?

1. Pupils and Paradigms: A Review of Literature Related to Concept Development in Adolescent Science Students by Driver and Easley: 238 citations
2. Students’ and Teachers’ Conceptions of the Nature of Science: A Review of the Research by Norm Lederman 344 citations
3. On the Role of Analogies and Metaphors by Reinders 166 citations.

Spend a little time searching for influential theoretical papers and what do you find?

Posner, Strike and Hewson’s paper on Accommodation of a scientific conception: Toward a theory of conceptual change has 994 citations. Driver et al.’s paper on constructing scientific knowledge in the classroom – 487 citations. Michael Matthews book *Science Teaching: The Role of History and Philosophy of Science* has 331. Now the quick witted critic will recognize that having decried the significance of numbers as a means of assessing value I am doing just that. However, my point is not that – the community must decide the value of these pieces of work. What the citation counts show is that these are valued. These works serve as important points on the theoretical compass that guide the work we do. The fact that they are so highly used suggests, I would argue, that we simply do not have enough works of this kind. Are we as a community rushing to undertake empirical work when more time spent ferreting out secondary data, critically examining the theoretical ideas that guide our work might be more useful? In short, where angels fear to tread, fools rush in.

To give just one example, one of the most influential papers for my work this year – what little of it I have been able to do – has been the paper published in *Science* by Robert Tai et al which mined the data in the National Education Longitudinal Study begun in 1988 to show that, for the majority of students, the decision about whether to pursue a STEM related career had largely been formed by the age of 14. A paper has major implications for those of us working in the area of elementary and middle-school science, I should add

So – as we wend our individual ways home from this conference, I ask – to paraphrase Einstein whether

Science education without data is lame, but is data without a good theory blind?

Basically, is it time to spend a bit more time in our armchairs more time picking over and thinking about what we do – to develop better theories about our goals and values in science education before rushing out to gather more yet more data?

# ***NARST Equity and Ethics Committee: Supporting a New Generation of Science Education Scholars***

*Angela Calabrese Barton, Chair*

## **A new generation of science education scholars**

The charge for the Equity and Ethics Committee is to provide “leadership and guidance to the Association on issues of equity, including but not limited to gender, ethnicity, socioeconomic status, disabling conditions, sexual orientations, language and religion.” There are many ways in which the Committee seeks to enact this charge, but one of our most important and exciting ways is through the selection of our *Equity and Ethics Committee Scholars*. The scholarships are designed to support promising young scholars from underrepresented groups to participate in NARST events and to contribute to science education research, scholarship, and leadership. The Scholars Program seeks to value new science education researchers from underrepresented backgrounds, and supports research agendas from many frameworks and methodological approaches.

The 2007 *Scholars* include:

Line Augustin, Graduate Center CUNY

Gillian Bayne, Graduate Center CUNY

Sanghee Choi, University of Houston

Tonjua Freeman, University of Georgia

Shawn Holmes, North Carolina State University

Hatice Inan, Ohio State University

Regina Suriel, University of Georgia

Chrisee Tabone, Florida Metropolitan University

Edna Tan, Michigan State University

Chrystal Travis Gomillion, North Carolina State University



Applications and information for the 2008 competition will be available November 1, 2007 on the NARST website.

## **Moving the agenda forward**

The Equity and Ethics Committee has been engaged in dialogue regarding the charge of the Committee and what this means for the kinds of activities we undertake. We encourage any NARST members with ideas or concerns in these areas to raise them with Committee members. In addition to the Scholars Program, we are working closely with the membership to bring salient research issues to the fore. For example, at NARST 2007, the Committee sponsored session focused on special education and its implications for science education. We also sponsor the Pre-Conference Workshop focused on welcoming and mentoring new scholars from underrepresented groups into NARST, the Equity Dinner, and the Scholars Research Symposium at NARST.

## **Contacting the Equity and Ethics Committee.**

The members of the 2007-2008 Committee include: Angela Calabrese Barton, Chair, Valarie Ackerson, Co-Chair, Scott Dantley, Joan Lindgren, Heidi Carlone, Maria Rivera Maulucci, Bryan Brown, Felicia Moore, Jrene Rahm, Claudia Melear, and Lisa Martin-Hansen. Please feel welcome to contact Chair Angela Calabrese Barton [acb@msu.edu](mailto:acb@msu.edu) and Co-Chair Valarie Akerson [vakerson@indiana.edu](mailto:vakerson@indiana.edu) for concerns, questions or suggestions.

**Congratulations!**

## *Spotlight on Equity and Ethics Committee 2007 Scholar*

Sreyashi Jhumki Basu, PhD, Assistant Professor of Science Education, New York University, NY, NY, completed her dissertation in 2006 at Teachers College Columbia University and began her role as Assistant Professor at NYU in the Fall 2006. Prior to completing her PhD, Dr. Basu served as a high school physics teacher in New York City. She had also previously taught Earth Science and Biology in California and New York. In April 2007 she was awarded the American Education Research Association Division K's Outstanding Dissertation Award. I had a chance to talk with Dr. Basu about becoming a science education researcher and what advice she had for new scholars in NARST.



Angela Calabrese Barton, Chair of the Equity and Ethics Committee, interviewed Dr. Basu.

**Angela: Why did you become an educational researcher?**

**Jhumki:** Though I love being in schools and teaching high-school students, I also wanted to have new kinds of intellectual challenge in my job. Also, in schools, despite being a science teacher, I felt as if I were doing all sorts of things not related to science, lots of “discipline” issues and ordering materials and scheduling. I missed thinking in a more focused way about science education with urban students. In some ways, as a researcher, I feel as if I listen to, respond to and support science teachers and students in a far better way than when I was a teacher. Research feels like a privilege -- a way to build hearing young people and teachers into one’s job!

**Angela: What is one finding from your dissertation that most caught your interest?**

**Jhumki:** That working in dialogue with students in small group and one-on-one ways is so important in moving kids forward. Sure, it’s not a cheap solution to educational problems or an easy one. But maybe our views of how education is structured should change from trying to find cheap, mass solutions to tailored ones that require the investment of significant resources.

**Angela: Tell me about a current project you are working on.**

**Jhumki:** I am currently working on understanding how teachers and students together interpret and enact the idea of democratic practice in science classrooms. The work relies on case studies and ethnography. I love observing students and teachers across 6 grades on co-planning lessons, designing student surveys to figure out how students in their grade learn, and setting up structures for ongoing feedback to evaluate engagement and understanding.

**Angela: What recommendations do you have for new scholars of color in NARST as they begin to craft their own scholarly voice?**

**Jhumki:** I think it is important to spend time and effort in finding and being accountable (with drafts of scholarly work and progress) to the right mentors, people who provide challenging, substantive, constructive feedback and support you through setbacks and disappointments while celebrating achievements. I think having this experience has also made me do a better job of being an advisor to my students. I also feel increasingly strongly, especially in light of being a teacher doing research, that research needs to have positive impact of value to the community where research is being done -- that it’s not fair to ask teachers and students to share their time and be “objects” of research.

## *Publications Advisory Committee*

*Co-Chairs, Barbara Crawford and Carla Zembal-Saul*



Carla Zembal-Saul and Barbara Crawford,  
Co-Chairs of the Publications Advisory Committee

The chair successfully worked with DMG in publishing a 25 page electronic volume of *E-NARST NEWS* February 2007, Volume 50 (1) currently posted on the NARST website. This February issue with more pages than previous issues, contains NARST news and announcements, articles from the president, past president, and president-elect, several board committee reports, highlights of the upcoming NARST annual conference and of New Orleans, and many photos taken by Penny Gilmer. The Publications Advisory Committee welcomes suggestions for changes in the future to any aspect of the *E-NARST NEWS*, including the Masthead, format, and content.

The Publications Advisory Committee sponsored two Sessions at the 2007 New Orleans conference: One well attended session was expertly lead by *JRST* Co-Editor, Randy McGinnis and *JRST* Associate Editors to help participants become familiar with the submission, review, and the communication process of the *Journal of Research in Science Teaching*.

The second session sponsored by the committee was titled, *Into the Fire: Current Issues of Publishing Science Education Research*. This panel session was organized and presided by Barbara Crawford. Panel members included: (photographed below from left to right)

Nancy Brickhouse, *Science Education*

J. Randy McGinnis, *Journal of Research in Science Teaching*

Charlene Czerniak, *Journal of Science Teacher Education*

Norman Lederman, *School Science and Mathematics*

Kenneth Tobin, *Cultural Studies of Science Education*

Michael Kamen, *Electronic Journal of Elementary Science*

James Shymansky, *International Journal of Science and Mathematics Education*

and moderator, Barbara Crawford, Co-Chair of the Publications Advisory Committee



The panel participants each had five minutes to present their views on current and controversial issues in publishing science education research. Participants included past and present editors of a spectrum of leading research journals in science education. The journals represent a range of research, including qualitative and quantitative, and use various publishing formats, including electronic. Some innovative ideas presented by panel members included having a Blog associated with articles in a journal. The standing room only audience raised questions about equity issues, efficiency of publishing articles, electronic publishing features, different genre of publications, theme issues, niche markets for journals, alternative journals, impact factors, and time frames for publishing articles. Some editors suggested the importance of creating a dialogue about how to make science education research more coherent.



James Shymansky



Michael Kamen



Charlene Czerniak



J. Randy McGinnis

The committee is collaborating with the External Policy and Relations Committee to initiate ways to better connect research to the practice of teaching. We plan to work towards developing publication avenues for translating NARST research into forms that readily available to classroom teachers. This is a work in progress, to be pursued, now that our new NARST Web site is available: <http://www.narst.org/> (go visit the site if you have not viewed it yet).

Thanks to outgoing member Marcelle Siegel for her contributions to this committee. Welcome to new committee members, Renee' Schwartz, member, and new Co-Chair and NARST Board Member, Carla Zembal-Saul. Thanks to continuing committee members, Bill McComas and Hedy Moscovici.



Lynn Bryan, Chair of the External Policy and Relations Committee

## *From the Editors of the Journal of Research in Science Teaching (JRST)*

*J. Randy McGinnis and Angelo Collins*

We are pleased to announce the appointment of the following new Editorial Board Members to the *JRST* Editorial Board (term, spring 2007 to spring 2010).

Dr. Shari Britner, Bradley University, USA

Dr. Lynn Carter, Australian Catholic University, Australia

Dr. Carla C. Johnson, The University of Toledo, USA

Dr. Nam Hwa Kang, Oregon State University, USA

Dr. Rola Khishfe, Loyola University Chicago, USA

Dr. Gerald H. Krockover, Purdue University, USA

Dr. Xiufeng Liu, University at Buffalo, USA

Dr. Obed Norman, Morgan State University, USA

Dr. Hedy Moscovici, California State University – Dominguez Hills, USA

Dr. Gillian Roehrig, University of Minnesota, USA

Dr. Rebecca Schneider, The University of Toledo, USA

Dr. Thomas R Tretter, University of Louisville, USA

Dr. Ed van den Berg, University of Amsterdam, The Netherlands

Dr. J. H. van Driel, Lieden University, The Netherlands

Dr. Bruce Waldrup, University of Southern Queensland, Australia

These new Editorial Board members represent a wide range of diversity present in the NARST community (including: international institutional affiliation, national (USA) institutional affiliation, science content expertise, methodological expertise, gender, race/ethnicity, and rank). They all responded voluntarily to a call for new *JRST* Editorial Board Members that the editors made in the *E-NARST News* and on the NARST All Members Listserv. While not all who applied could be appointed this year due to an issue with qualifications (prior experience reviewing for and publication in the journal were stated prerequisites) and/or limitation in the number of spaces available for new Editorial Board members, we would like to thank all those who responded to the call. Our next call for Editorial Board Members will come out in early 2008.

# *International Committee Report*

*Mei-Hung Chiu (Chairperson) and Saouma BouJaoude (Co-Chair)*

During the 2007 NARST Annual conference, the NARST International Committee organized the following activities:

- **International Symposium.** The title of the symposium was “Professional development of science educators worldwide”. Presenters in the symposium included Saouma BouJaoude, American University of Beirut, Lebanon, Justin Dillon, King’s College London, UK, Pamela Fraser-Abder, New York University, USA, Avi Hofstein and Reachel Mamlok-Naaman, the Weizmann Institute of Science, Israel, Fouad Abd-El-Khalick, University of Illinois at Urbana-Champaign, USA, and Eduardo Fleury Mortimer, Faculdade de Educação, Universidade Federal de Minas Gerais, Belo Horizonte – Brazil. Norm Lederman, Illinois Institute of Technology was the discussant and Saouma BouJaoude, American University of Beirut was the organizer and the presider. Presenters examined professional development of science educators from a variety of perspectives and investigated the extent to which science educators learn from the experiences of international colleagues.

- **ASERA Symposium at NARST 2007.** The title of the ASERA symposium was “Curriculum Changes in Science Education in Australia and New Zealand: Challenges and Opportunities”. Presenters in the symposium included Leonie Rennie, Curtin University, Denis Goodrum, University of Canberra, Donna King and Stephen Ritchie, Queensland University of Technology, Coral Campbell, Gail Chittleborough, Peter Hubber, Russell Tytler, Deakin University, Melbourne, Anne Hume and Richard K. Coll, University of Waikato New Zealand. David F Treagust, Curtin University was the presider. The symposium was jointly sponsored by both NARST and ASERA.

- **NARST Travel Scholarships.** The NARST International Committee administered the NARST Travel scholarships to support advanced doctoral students and junior scholars outside the U.S.A. to attend the 2007 NARST conference. The committee received

35 applications which were reviewed by members of the committee. The following ten individuals won the grants: Lucy Avraamidou, Cyprus ; Galit Botzer, Israel; Ahmad Qablan, Jordan; Hayat Al Hokayem, Lebanon; Hyunju Lee, South Korea; Shu-Fen Lin, Taiwan; Chatree Faikhamta, Thailand; Yaowares Chaiyen, Thailand; Ayla Cetin, Turkey; Feral Ogan-Bekiroglu, Turkey.

- **Mentoring Program.** The International Committee continued its initiative to provide mentoring opportunities for NARST international members. The individuals who requested help during 2007 were matched and put in contact with volunteers of similar areas of expertise.

In addition to the above activities, the International Committee held its meeting during the conference. About twenty NARST members attended the meeting among whom were the winners of the NARST travel Scholarship and new members of the International Committee. During the meeting several issues were raised, such as the possibility of expanding the present collaborations with regional science education research associations and other science educating organizations for mutual benefit of NARST members and members of these associations and organizations.

Members of the International Committee include

Bruce Waldrup (08)  
Olugbemi Jegede (08)  
Maria Pilar Jimenez (08)  
Rachel Mamlok-Naaman (08)  
Kadir Demir (09)  
Eduardo Mortimer (09)  
Sibel Erduran (10)  
Barbara G. Ladewski (10)  
Uri Zoller (10)

# *A More Central Role in National Policy Decisions*

## *Research Committee Report*

*Randy Yerrick, Chair*

As a committee we are working hard to bring a vibrant and relevant research agenda to the membership for the annual conference as well as working to bring the organization into a more central role in national policy decisions. Part of the concerns of the leadership and membership at large is that NARST needs to play a more active role informing science education policy and influencing the research agendas on a national scale. As a committee we have discussed a variety of strategies. Here is a list of some of those strategies and some ways you can assist us in this important.

committee we are also charged with selecting the Research Committee Sponsored Workshops and Strand Sessions. If you have ideas for workshops you think need to be offered or sessions, panels, or presentations you think the Research Committee should sponsor, please do not hesitate to bring them to the attention of the committee. It is our hope that these changes in the annual program will both educate and stimulate collaborations among the membership.



Co-Chairs Pam Fraser Abder and Randy Yerrick collaborate during the Spring Board Meeting

Some of the feedback we have received from the membership is that NARST should be more active in presenting a larger diversity of research methodologies and agendas. In response we plan on sponsoring specific strand sessions which will assist members new and old in keeping current with developments in various methodologies (e.g.; assessment, intervention, scale-up models, experimental design). We will also be working with strand coordinators to organize some paper sets by methodology and not topic alone. Including some of these sessions should encourage comparisons among the ways similar methodological studies are conducted and encourage a common discourse for targeted research sessions. As a

We have also heard that the strands that are determined for submissions each August for the subsequent annual meetings are in need of re-examination. Some of the feedback we have received is that NARST is over-emphasizing teacher education efforts and under-emphasizing other vital areas of research. To measure the accuracy of such claims we aimed to get a broader interpretation of membership interests and activities by launching a survey regarding the strands. There was only a modest response to the online survey, and we will be redeploying this online survey and closing the portal in mid August to give members a longer window in which to respond. The SUNY campus at Buffalo will be hosting this survey and questions regarding its use can be directed to [buffaloscience@mac.com](mailto:buffaloscience@mac.com). We hope all members will make their interests and feedback known through this research tool. The NARST Board will be discussing the outcome of this survey at their Fall Board Meeting.

We believe that it is important to keep the membership up to date with current agendas for funded research. Many members are not aware that NSF has recently gone through a major reorganization in priorities and funding. “data-driven” studies are one example of the revised foci, and we feel it is important to bring attention and focus to relevant research by inviting director(s) of NSF to NARST to explain the nuances of new programs. We will host an NSF-sponsored session at the next annual meeting and if

you have strong recommendations of who would be the most knowledgeable or appropriate for this session we welcome your suggestions.

*NARST needs to play a more active role informing science education policy and influencing the research agendas on a national scale.*

We also want to remind our membership that NARST regularly coordinates with NSTA to reserve 10 hours of presentation sessions. Your NARST proposal may be easily adapted to present at a regional or national NSTA meeting, especially if it pertains to teaching and learning. So please consider how your research may impact organizations beyond NARST.

Finally, we welcome your feedback and ideas. We also look forward to your responses on the membership survey. Your involvement in this committee's work helps to make our research efforts as an organization more focused and relevant to today's educational context.

For years both NARST and NSTA members have been expressing interest in improving the inter-organization communication. With accountability measures and assessment driven curriculum pressures, science teachers are seeking more input on how to improve science achievement and design studies to measure specific pedagogical shifts. Because NARST members are consistently in need of teachers to collaborate with for their research and NSTA members are seeking input, it only make sense to create a collaborative tool in this electronic era to facilitate this matching of mutual interests. Currently, this committee is working with NSTA to create an online database for interested NARST members who develop a research profile to be matched with NSTA members seeking collaborations. This collaboration project will begin with the self-identification of NARST members interested in participating and the creation of meta tags which will be searchable and functional for best results. Members of both organizations will be allowed to edit their own profile as researchers and teachers to avail themselves in areas and interests they define themselves. A beta site will be used to test the functionality of this database before the final collaborative tool will be shared with the public. Members wishing to collaborate in this first stage of creating a research profile should affirm their interest by checking the appropriate box at the end of the membership survey expressing their interest. We are very excited about the possibility of increased communication and inter-organization cooperation this project presents.

## NARST Awards 2007

*Dr. Kenneth Tobin, City University of New York, Receives  
Distinguished Contribution Award*



Dr. Kenneth Tobin and his wife, Barbara

During the awards banquet on Wednesday, April 18, 2007, Dr Tobin was presented a plaque with two engraved plates: one with the name of the award and the other with the following inscription:

“Over the past thirty years, Professor Kenneth Tobin has been one of a rare breed of science education researchers who is highly knowledgeable, enthusiastic, innovative, charismatic, and empathetic and who has shaped the field of science education internationally. His program of research is at the cutting edge, both theoretically and methodologically, leading others around the world. As one of the world’s leading science educators, his contributions can be measured by the number of publications, by how often those publications are cited, and by their influence on other researchers. More important than Professor Tobin’s publication record, however, is his ability to translate research into practice with a wide variety of participants, from urban high school students to research science faculty at public and private universities. His research on the practice of teaching and learning is exceptional because it truly has an impact on learners. Professor Tobin’s commitment to mentoring and collaboration has made an incalculable contribution to science education. In terms of both the quantity and quality of doctoral students, few science educators have had Professor Tobin’s success. Another of his major contributions is to show junior colleagues by example the need to continually develop, evolve, and broaden their research perspectives and to communicate their research findings to all stakeholders. His mentoring also is evident in the number and diversity of his collaborators on publications, many of whom are junior colleagues. Professor Tobin’s vision, energy, and dedication to science education, coupled with his commitment to high quality, ground-breaking research, make him the most deserving recipient of the 2007 Distinguished Contributions to Science Education through Research Award.”



Ken's crew celebrate his award at dinner

## Dissertation Award

Name: Julia Plummer

Title: "Students' development of astronomy concepts across time"

Institution: University of Michigan

Advisor: Joseph S. Krajcik



Shari Britner and Fouad Abd-El-Khalick present award to Julia Plummer

## NARST Outstanding Paper Award

Name(s): Eugene L. Chiappetta, Tirupalavanam G. Ganesh, Young H. Lee, and Marianne C. Phillips

Title: "Examination of science textbook analysis research conducted on textbooks published over the past 100 years in the United States"



Anil Banerjee and Fouad Abd-El-Khalick present award to Eugene Chiappetta and Marianne Phillips

## JRST Award

Name(s): Jerome Pine, Pamela Aschbacher, Ellen Roth, Melanie Jones, Cameron McPhee, Catherine Martin, Scott Phelps, Tara Kyle, and Brian Foley

Article Title: "Fifth graders' science inquiry abilities: A comparative study of students in hands-on and textbook curricula"

Citation: *Journal of Research in Science Teaching*, Volume 43(5), pp. 467-484

## Early Career Research Award

Bryan A. Brown, Stanford University



Fouad Abd-el-Khalick, Chair of the Awards Committee with award recipient Bryan Brown and Norm Lederman, Chair of the Early Career Research Award Committee

## Inscription on plaque:

"The Early Career Research Award recognizes Dr. Bryan A. Brown for his outstanding professional accomplishments. Dr. Brown's record of research and publications make him well known and respected as an emerging scholar in science education. Colleagues have described his research as innovative, theoretically grounded, and critical in the area of equity and minority students' science learning. His scholarly contributions draw from cultural anthropology and sociolinguistics to offer new insights into the study of discursive identity and discourse in science education. As a recipient of the National Association for Research in Science Teaching Early Career Research Award, he joins his predecessors in setting high standards for future awardees."

# *Connecting Scientific Society Presidents Education Research to U.S. Education Policy*

*Penny J. Gilmer, President*

President Penny J. Gilmer and President-elect Charlene Czerniak attended the Council for Scientific Society Presidents (CSSP) meeting in Washington, DC in May 2007. ASTE President Janice Koch and NSTA Past-President Linda Froschauer also attended. The meeting's agenda was full of interesting presentations, from black holes, to metal organics, to global climate change, to gifted children, and to water uncertainties. President Gilmer also attended two CSSP committee meetings, the International Committee and the Science and Mathematics Education Committee. In the International Committee meeting, members passed a resolution to encourage the UN Division of Science and Technology Policy in which we can propose scientific and technological expertise. The Science and Mathematics Education Committee members discussed the need for the U.S. to participate in the high school level TIMSS study. We need to be part of TIMSS so we can learn the United States' weaknesses and embrace our strengths in education. NARST leaders can learn from CSSP, and have an opportunity to understand how to connect science education research to U.S. education policy. Many science societies are anxious to interact with science educators. The time is ripe for collaboration. Also a delegation from CSSP visited the US Congress and met a number of the leaders in science and in education reform within the House of Representatives. Penny Gilmer visited her own Congressman Allan Boyd's office, as well. The CSSP connects us to those we need to meet to determine how we can ensure that our science education research influences education policy in the US. By NARST influencing U.S. science education policy, we will influence other countries as well.



President-elect Charlene Czerniak collaborates  
with ASTE President Janice Koch

*NARST leaders can learn from  
CSSP and have an opportunity  
to understand how to connect  
science education research to U.S.  
education policy.*

# Photo Highlights of 2007 Conference in New Orleans

Photos by Penny Gilmer



Robin Turner and Kim Stegmaier  
from DMG



President Penny J. Gilmer (on right) with  
NARST members at reception



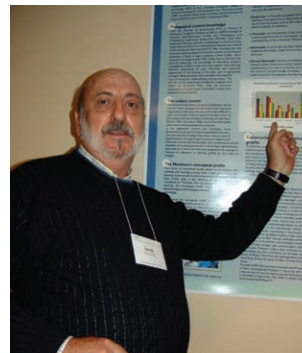
NARST member, Sherry  
Southerland directing us to FARSE



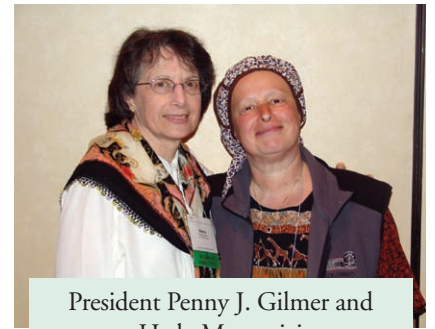
Duke and his Jazz band in  
New Orleans



Two 'FARSEical' characters



Andoni Garritz explaining  
his data at his poster



President Penny J. Gilmer and  
Hedy Moscovi



Strand 11 Coordinators,  
Felicia Moore and Magnia George



Strand 1 Coordinators,  
Catherine Milne and  
Eva Erdosne Toth



Jonathan Osborne (left) and John Tillotson  
(right), thanking Saouma BouJaoude as  
International Coordinator on the NARST Board



Penny J. Gilmer (left) with Jonathan Osborne  
(center receiving his plaque, which thanks him  
and recognizes his leadership in NARST as  
President, 2006-2007, and new International  
Coordinator, Mei-Hung Chiu (right)

Valarie Akerson, new board member  
with Fouad Abd-EL-Khalick and  
Jerome Pine's friend



## *More Photo Highlights*

*Photos by Penny Gilmer*



NARST member, Anita Roychoudhury, attending a session



NARST Board member, Fouad Abd-El-Khalick at FARSE



NARST member, Kathleen Roth, asking a question at a plenary address



Strand 12 Coordinators, Barbara Hug and Hsin-Kai Wu



NARST Attendees at one table at Equity dinner



NARST members, Elizabeth Berkes with Nancy Pelaez from the NSF

NARST member and doctoral student, Xenia Meyer



NARST member, Norman Lederman at FARSE



NARST member, Kadir Demir

