

2012 NARST Presidential Address

J. Randy McGinnis, University of Maryland

[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-incidence, 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 oftentimes ill-structured)--in new, and re-imagined ways that will 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 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?

[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 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:

- [Slide 7] New topics,
- [Slide 8] New theoretical frameworks, and
- [Slide 9] New data collection sources. [Slide 10] [Slide 11]

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]

[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 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 have served our Association as NARST's 85th President.

Thank you.

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