

AAAS and NSBA Present

A  Training Program for Board Members

# Science, Mathematics, and Technology Education:

## WHY DO WE CARE?

*Participant Manual*

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This module contains quotations and materials from the seminar that the American Association for the Advancement of Science (AAAS) and the National School Boards Association (NSBA) hosted on June 23, 2007, in Kansas City, Missouri, with support from the Ewing Marion Kauffman Foundation.

The speakers were:

- Joan Abdallah, Program Director, K-12 Programs, AAAS Education and Human Resources
- Rita Barger, Assistant Professor, Curriculum & Instructional Leadership, University of Missouri, Kansas City and the National Council of Teachers of Mathematics (NCTM)
- Barry Burke, Director, Center to Advance Teaching of Technology and Science, International Technology Education Association (ITEA)
- Will Friedman, Director, Center for Advances in Public Engagement, Public Agenda
- Alison Kadlec, Senior Research Associate, Public Agenda
- Jo Ellen Roseman, Director, AAAS Project 2061
- Joe Villani, Deputy Executive Director, NSBA

## Workshop Objectives

Participants will gain knowledge and tools that can be used to begin creating solutions for science, mathematics, and technology programs in their districts by:

- Understanding the importance of and the urgency for high quality science, mathematics, and technology (SMT) education;
- Connecting SMT education to their district vision.
- Developing key talking points and a plan for engaging local boards on this topic.

## From Science for All Americans, *Introduction*

### **Why Science, Mathematics, and Technology?**

Education has no higher purpose than preparing people to lead personally fulfilling and responsible lives. For its part, science education – meaning education in science, mathematics and technology – should help students to develop the understandings and habits of mind they need to become compassionate human beings able to think for themselves and to face life head on. It should equip them also to participate thoughtfully with fellow citizens in building and protecting a society that is open, decent, and vital. America’s future – its ability to create a truly just society, to sustain its economic vitality, and to remain secure in a world torn by hostilities – depends more than ever on the character and quality of the education that the nation provides for all its children. ...

What the future holds in store for individual human beings, the nation, and the world depends largely on the wisdom with which humans use science and technology. And that, in turn depends on the character, distribution, and effectiveness of the education that people receive.

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# How Does an Acorn Become an Oak?

Your answer:



4<sup>th</sup> graders' answers:

College graduates' answers:



# The Challenge: Initiating Efforts to Improve Science, Math and Technology Education

As you watch the video, consider what the speakers have to say and what you believe about the following question:

*What is the urgency around high-quality science, mathematics, and technology education for...*

*a) Students?*

*b) The nation?*

*c) School boards?*



## Table Talk

Take 10 minutes to talk at your tables about your reaction to the issue of urgency and your reaction to the video.

# Making the Case

1) Where do we stand?

2) What are the benefits of high-quality SMT education for...

- Students as future employees?



- Students as innovators for the greater good?



- Students as critical thinkers and informed decision-makers?



“The present structure of the education system does students a tremendous injustice by not delivering the quality schooling we are capable of. State assessments play a role in education, but a score on a test will not help the student when he or she is competing for a job with someone from China or India. What is important is that students enter the global economy with the ability to apply what they learned in school to a variety of ever-changing situations that they couldn’t foresee before graduating. That is the mark of a quality education and a truer indication of academic excellence.”

*“Achieving Academic Excellence  
Through Rigor and Relevance”  
Willard R. Daggett, September 2005*



### **Table Talk**

What implications do these benefits have for districts balancing the many competing demands for time and resources (e.g., the requirements of No Child Left Behind, etc.)?

# The Board's Role: Detecting the Vision



# The Board's Role: Detecting the Vision

## *Key Vision Questions:*

- *What do we want for our students and community when it comes to quality science, mathematics, and technology programs?*
  - *How can/should we balance science, mathematics, and technology education within the demands of our overall curriculum?*
  - *What is the purpose of technology in our district?*
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- 1) Who are the key people (both by NAME and ROLE) who must be involved in developing and articulating our district vision for science, mathematics, and technology education?
- 2) What barriers to engagement should we anticipate? What resistance to program change? What can we do to overcome these?
- 3) Who is responsible for planning the details of our visioning and engagement process, including the process we'll use and a timetable?
- 4) When will the board review the process proposed, and what is the projected completion date for board action on a vision statement?
- 5) How should we address the issue of what policies need to be in place to support this vision?



## Table Talk

How will you bring this issue to your board's attention?

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**Develop a strategy for having this conversation at your board table:**

- **Determine your primary talking points. What do you want them to know and understand?**
  
  
  
  
  
  
  
  
  
  
- **Where or with whom should you begin?**
  
  
  
  
  
  
  
  
  
  
- **How might you get this on the agenda?**

# My Strategy

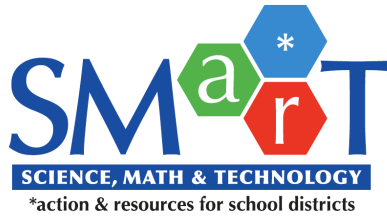
Talking Points:

# The Next Step

**Who?**

**When?**

**How?**



## Science, Mathematics, and Technology Education Program Workshop Sections

- **Part One: Science, Mathematics, and Technology Education – Why Do We Care?**

This session is designed to inform board members about the importance and benefits of high quality science, mathematics, and technology instruction and to jump-start visioning for quality district programs

- **Part Two: What Do We Want and How Do We Get It?**

This session explores the elements of quality science, mathematics, and technology learning standards and assists boards in planning for effective assessment, accountability and alignment processes and strategies that will support those standards.

- **Part Three: Engaging Our Public around Science, Mathematics, and Technology Education – How Do We Do It?**

The third session provides ideas, tools and resources for increasing public interest in and support for high-quality science, mathematics, and technology education as well as for engaging public around sensitive and/or divisive issues.

- **Part Four: Science, Mathematics, and Technology Education: The Board's Role**

The final session puts the ideas from the previous sessions into the framework of the *Key Work of School Boards* and provides a guide for future action.

***Project Web site: [www.smartschoolboards.org](http://www.smartschoolboards.org)***

**NOTES:**