

43rd NAWI Annual Conference – 2008

Burlington, Vermont

Innovation and Emerging Technologies: The Role of Career and Technical Education
May 13-16, 2008

Conference Program

TUESDAY, May 13

10:30 a.m.-3:30 p.m. Pre-conference Session

How to Deliver Nanotechnology Education in the Classroom (Green Mountain A)

Deb Newberry, Associate Professor
Dakota County Technical Community College, Rosemount, MN

Deb Newberry, Associate Professor at Dakota County Technical College in Rosemount, Minnesota and author of the book, *The Next Big Thing Is Really Small: How Nanotechnology Will Change the Future of Your Business*, spent 23 years in the corporate world as a nuclear physicist and executive manager, then switched gears and entered the world of education. She began the Nanoscience Technology program and created eight of the nano-related courses required for the two-year Nanoscience Technician Degree at Dakota Technical College. Join a discussion and examine real examples of how to implement nanotechnology in science and technology classrooms and labs. (Space is limited. If attending only this session, \$95.00 registration fee.)
([Powerpoint](#); 1.5 MB)



4:00 p.m. NAWI Board Meeting (Shelburne Farms) Doug Webster, NAWI President

WEDNESDAY, May 14

7:30-8:30 a.m. Registration and Continental Breakfast (Foyer)

8:30-9:30 a.m. General Session I (Green Mountain Ballroom)

Welcome to Vermont

Richard Cate, Vermont Commissioner of Education

Future Trends and Challenges in Education

Ray McNulty, Senior Vice President

International Center for Leadership in Education, Rexford, NY

The future is being shaped by four mega trends - globalization, demographics, technology, and changing values/attitudes. Ray McNulty will explore these trends and their impact on what students need to know and be able to do. In addition, he will discuss why we need to reinvent our education system and describe the research that supports the Rigor/Relevance Framework™ and the importance of moving to application-based instruction as a means of raising student achievement. He will conclude by discussing the challenges we will face in the new conceptual age that lies ahead and the impact on students, schools, and society if we do not prepare students adequately for this changing world. ([Powerpoint](#); 2.15 MB)

9:45-11:00 a.m. Breakout Sessions I

IT Across Careers (Green Mountain A)

Linda Scott

Education Development Center, Inc., Newton, MA

Students and learners preparing for careers in every career cluster need basic IT proficiency to compete and succeed in today's global knowledge economy. But what does it mean to be proficient in using basic IT applications and tools? What does using IT look like in action on the job? What can we do to help our students develop the technology skills they need for the 21st century world of work, and how do we benchmark their IT skills achievements, especially in non-IT programs? Attend this session to learn about the NSF-ATE IT Across Careers (ITAC) project. Examine examples of ITAC instructional materials that integrate IT with CTE program content and industry-validated rubrics to assess these IT user skills. Look at different ways the rubrics can be used successfully as an integrated teaching tool in classrooms and programs of study, including ways that the rubrics provide a structure for IT learning and assessment in non-IT career programs.

([PDF](#); 2.5 MB) ([PDF](#); 102 KB) ([PDF](#); 35 KB)

A Unified Curriculum for Manufacturing Education (Green Mountain B)

Marilyn Barger

Florida Center for Manufacturing Education, Tampa, FL

Check out Florida's new educational pathways for manufacturing careers! FLATE, an NSF ATE Regional Center of Excellence for Manufacturing Education, devised and now implements an industry-driven community college curriculum aligned with the national Manufacturing Skills Standards Council (MSSC) Certification. Active engagement of partners from community colleges, industry, four-year institutions, high schools, the Department of Education, and MSSC has helped to define viable and vibrant pathways with multiple entries and exits along the paths.

[\(PDF; 2.5 MB\)](#)

Leveraging National Science Foundation Funding to Promote Technical Career Paths (Lake Champlain A)

Karen Wosczyzna-Birch, Executive Director

Kerry Simoneau, Program Manager

Regional Center for Next Generation Manufacturing, Hartford, CT

Judith Resnick, Deputy Executive

Education Foundation CBIA

The CT College of Technology, a virtual college between CT's 12 community colleges, six university partners, and secondary schools, has successfully implemented a Regional Center for Next Generation Manufacturing. The Center's primary goal was to change the image of manufacturing in the region, and as a result, increase enrollments in manufacturing and related STEM fields. Learn how the partner organizations used a marketing plan that included a statewide Expo, a DVD, teacher guides, and outreach activities to counselors. Examine the results of these initiatives, including three years' increased enrollments in engineering and technology programs.

11:00-11:15 a.m. Break

11:15 a.m.-12:30 p.m. Breakout Sessions II

Establishing a Leadership Team for Technical Students (Green Mountain A)

Dorene Perez, Rose Marie Lynch, and Jim Gibson

Illinois Valley Community College, Oglesby, IL

A leadership team at IVCC provides technical students with opportunities for personal and professional growth and supplies the college with

enthusiastic and capable students to assist with recruiting and mentoring. Supported by an NSF grant, the team prepares students to use their leadership skills in the workplace. Learn to adapt this model to your setting as the team describes 1) organizing the Leadership Team at IVCC, including criteria for selection, invitation to the team, training and professional development opportunities, team activities, and stipends paid to team members; 2) the benefits and successes of the team; and 3) plans to organize similar teams at the high school level. Work in small groups, brainstorming and discussing ideas for developing local leadership teams, addressing 1) criteria for selection, 2) availability of training and development opportunities, 3) team activities, and 4) possible stipends and funding sources.

[\(Powerpoint; 3.9 MB\)](#)

Sustainable Product Design & Redesign: Putting ISO 14000 into Practice (Green Mountain B)

Robert W. Simoneau
Keene State College, Keene, NH

So that technology and engineering students learn to implement the concepts implied in ISO 1400, pollution prevention, they study existing disposable consumer products: products already designed for reuse and recycling. Watch this demonstration of four commodity products—reusable envelopes, dental floss cases, safety razors, and water filters—to understand how the designs of these products lend themselves to reuse. Learn how to replicate the demonstration for your own students.



Arizona: Building a Statewide Skill Standards and Assessment System for Career and Technical Education (Lake Champlain A)

Barbara Border, Arizona Department of Education, Phoenix, AZ
Maggie Mangini, Arizona State University, Tempe, AZ
Ron McCage, VTECS, Atlanta, GA

The Arizona Department of Education has created a partnership with Arizona State University that involves Corporate Education Consulting, Inc., Pitsco/TFI, and VTECS to establish a statewide skill standards and assessment system that both meets CTE needs in Arizona and implements the major principles of a model developed and adopted by the VTECS Board of Directors to accomplish this work across state lines. The outcomes will ensure industry-validated standards for all CTE programs and an online assessment delivery system to serve secondary comprehensive Joint Technical Education Districts, Community Colleges, and Department of Economic Security One-Stop Centers. The system will

address the provisions of the recently reauthorized Carl D. Perkins legislation requirements as well as the recently enacted Arizona JTEDS Law relating to student technical skill attainment, industry-validated certification, and postsecondary articulation. Learn how the plan works, Arizona's progress in implementing it, and how others can benefit from this effort.

12:30-2:00 p.m. Lunch (Seasons on the Lake)

New England Panel on Emerging Technologies and the State of Manufacturing/Engineering Education in New England

Maine: Lisa G. Martin, Executive Director, Manufacturers Association of Maine

Massachusetts: Nick Massa, Professor, Springfield Technical Community College; Fenna Hanes, Senior Director of Professional & Resource Development

New Hampshire: Robert W. Simoneau, Professor, Keene State College

Connecticut: Dr. Karen Woscza-Birch, Executive Director Connecticut College of Technology-Regional Center for Next Generation

Manufacturing; Kerry Simoneau, Program Manager Connecticut College of Technology- Regional Center for Next Generation Manufacturing;

Judith Resnick, CBIA Connecticut Business and Industry, Director of Workforce Development

As global competition forces national and regional manufacturing firms to struggle for their very existence, a parallel dynamic is operating in manufacturing education. The aging of manufacturing educators puts their programs in jeopardy of closing at all levels of education, from technical high school through community colleges to four-year institutions. This is unfortunate, given that the most recent data from manufacturing workforce surveys show a steady or increasing demand for skilled employees such as engineers, machinists, and related metal workers. Current manufacturing education cannot meet the existing demand. This situation is particularly acute in New England.

Connecticut's College of Technology, through its Regional Center for Next Generation Manufacturing, is exploring these dynamics in an effort to provide solutions to administrators and policy makers. Observe a panel discussion exploring the status of manufacturing, particularly in New England, with a group of educators, manufacturing employment experts, and industry experts.

2:15-3:30 p.m. Breakout Sessions III

**Bringing Model STEM Curriculum Into the Connecticut Classroom:
An Approach That Works** (Green Mountain A)

Gregory C. Kane

Connecticut Department of Education, Hartford, CT

In the last three years more than 60 Connecticut high schools and middle schools have formally adopted the nationally recognized STEM curricula, Project Lead the Way (PLTW) and now Engineering by Design (EbD). These two model curricula have given teachers a clear-cut method to prepare students for a number of STEM-related career pathways. As the Department of Education works with local school districts in the redesign of public schools, the two models have become the program of choice cross the state. Examine an overview of PLTW and EbD, focusing on both content and the nationally recognized delivery system. Obtain samples of curriculum units from both programs, an overview of the professional development provided, and the requirements all school systems must agree to in order to participate in these programs. Find out how Connecticut has provided more than \$1 billion to after-school programs linked to PLTW and EbD.

**OH NO, You Can't Go: Improving Graduation Rates through Regional
CTE Centers** (Lake Champlain A)

Virginia Irwin and Susan Randall

New Hampshire Department of Education, Concord, NH

Effective July 1, 2009, New Hampshire students cannot drop out of school until age 18. Find out how state alternative education funding was secured to expand alternative education programming within a regional concept. Learn about the implementation plan, including High School Redesign (Statewide Literacy and Numeracy Plan, Extended Learning Opportunities, Time Flexibility, School Improvement Efforts), Personalized Alternative Learning Plans, Data Systems, and GED Options. Obtain copies of materials and participate in a Q&A session.

[\(Powerpoint; 490 KB\)](#)

3:30-3:45 p.m. Break

3:45-5:00 p.m. Breakout Sessions IV

**Using Problem Based Learning to Enhance CTE Through a STEM
Initiative** (Green Mountain A)

Dr. Frances Beauman

Southern Illinois University, Springfield, IL

Learn how CTE can be a part of the Science, Technology, Engineering, and Mathematics (STEM) initiative. Experience a hands-on session that

demonstrates how you can use problem-based learning in the classroom to enhance CTE and STEM topics. Hear how innovative and creative teachers are using this teaching method to promote economic development in their communities. Examine strategies and best practices that school districts have used, and obtain access to a wide variety of STEM-related problem-based learning materials. Discover a variety of ways business partners can make STEM learning experiences richer for students.

([Powerpoint](#); 493 KB)

All-in-One Package Deal—Creative Scenario Assessments the Vermont Way! (Green Mountain B)

Carl DeCesare

Southwest Vermont Career Center, Bennington, VT

Doug Bell

Northwest Technical Center, St.

Albans, VT

Tina Mueller Superior Technical
Ceramics, St. Albans

Jack Russell, Leadership
Consultant

Center for Self-Sustaining
Leadership



Led by local engineering and manufacturing firms, a group of CTE, mathematics, science, marketing, and communications teachers took a holistic approach to engineering curriculum and assessment. Get information about two projects: first, a design, test, and marketing of a state-of-the-art snowboard binding; and second, the re-engineering of a key component in France's nuclear power industry. Learn how the group developed real-world projects, critical tasks, and measurable performance indicators that included a cross discipline of student teams, innovative critical problem solving, information sharing, and professional presentations by global engineers who provided guidance, mentoring, in-process feedback, and assessments.

Problem Based Learning as a Teaching Strategy for the Innovation and Emerging Technologies Workforce (Lake Champlain A)

Nicholas M. Massa, Professor of Laser Electro-optics Technology

Springfield Technical Community College, Springfield, MA

Today's technicians must be problem solvers – individuals who skillfully combine their knowledge of technologies with a set of problem solving skills and

dispositions to tackle real-world issues across diverse settings. Few opportunities are offered for students to actively engage in real-world problem solving. The New England Board of Higher Education's National Science Foundation-funded project PHOTON Problem Based Learning (PBL) is developing a series of eight industry-based multimedia PBL Challenges designed for use in high school and college classrooms. The presentation will include an overview of problem-based learning, a demonstration of the PHOTON PBL Challenges, and examples of how students and teachers who are field-testing the materials are implementing this alternative instructional methodology in their classrooms.

5:30 p.m. Reception (Seasons on the Lake)

NAWI extends its appreciation and thanks to the sponsors of this reception: VTECS, Career Communications, and NOCTI



THURSDAY, May 15

7:30 a.m. Continental Breakfast (Foyer)

8:30-9:30 a.m. General Session II (Green Mountain Ballroom)

Keynote Speaker

Deb Newberry, Associate Professor
Dakota County Technical College, Rosemount, MN

Deb Newberry, author of the book, "The Next Big Thing Is Really Small: How Nanotechnology Will Change the Future of Your Business," will discuss the impact nanotechnology will have on the future economy and workforce.

[\(Powerpoint; 3.9 MB\)](#)

9:30-9:45 a.m. Break

9:45-10:45 a.m. Breakout Sessions V

IT Convergence: The Future of IT Education (Green Mountain A)

Gordon Snyder
Springfield Technical Community College

National Center for Telecommunications Technologies, Springfield, MA
Convergence confusion. Fragmented staff. Future-proofing. All these mean change. Convergence, especially the near term of voice over IP/IP-

telephony (VOIP/IPT) implementation, is a cultural change, not just a new way of building an IT environment. The rapid integration of what were separate technologies into a converged environment affects IT management and staff. How do you future-proof the IT organization? Can this even be done? Modified IT organizations, cross-training, and knowledge transfer in multiple technologies have become the mandatory answers. Be there as the National Center for Telecommunications Technologies National Science Foundation-funded Advanced Technological Education Center of Excellence discusses IT Convergence and the impact on curriculum design and delivery at all levels.

Nano-Micro Technology in the 21st Century (Green Mountain B)

Deb Newberry

Dakota County Technical College, Rosemount, Minnesota

Join a discussion led by keynote speaker Deb Newberry on the impact of small technology on materials, products, and commerce and, for the purposes of the NAWI conference, ways that educators will incorporate nanotechnology applications in curriculum in a variety of disciplines. Examine examples of how nanotechnology is being used to improve our lives, preserve our natural resources, affect climate change, and get students excited about science and technology.

Undergraduate Research: Discovering the Role of Community

Colleges (Lake Champlain A)

Dr. Nancy Hensel

Council on Undergraduate Research

The Council on Undergraduate Research has a National Science Foundation Advanced Technology Education grant to host six regional conversations to discuss the involvement of community colleges in undergraduate research. Six conversations held in Chicago; Atlanta; San Jacinto, California; El Reno, Oklahoma; Seattle; and Boston revealed that many community colleges are actively engaged in promoting undergraduate research either on their own campus or through partnerships with four-year colleges, corporations, or government agencies. Learn further results of the regional conversations, including approaches to project-based learning and examples of research with emerging technologies.

[\(Powerpoint; 2.7 MB\)](#)

10:45-11:00 a.m. Break

11:00 a.m. -12:15 p.m. Breakout Sessions VI

Developing Innovation Talent: New Designs for Career and Technical Education Programs (Green Mountain A)

Bob Sheets

University of Illinois at Urbana-Champaign

In the future, states and their regions will face increasing competition based on innovation, and the key will be innovation talent. Developing innovation talent requires a fundamental rethinking of what we teach, how we teach, and how we organize and manage learning and talent development in CTE programs in high schools and community colleges. The major challenge will be teaching students the skills to drive and support innovation through cross-functional teams. Students must acquire a new breadth and depth of skills and knowledge through a stronger focus on problem-centered learning and cross-functional team practice. The new career cluster curriculum frameworks provide a promising starting point. Obtain examples of how schools and colleges can build innovation talent through industry-sponsored problem-centered projects that involve cross-functional student teams within and between career cluster areas.

[\(Powerpoint; 138 KB\)](#)

PODS Assessment System: Going Platinum (Lake Champlain A)

John Fischer, Vermont Dept. of Education, Montpelier, VT

Joe Lualhati, Global Skills X-change, Alexandria, VA

Take a look at an innovative approach to creating and implementing a comprehensive credentialing model. The goals articulated in Perkins IV pose challenges that include 1) providing proof of instructional results, 2) acting as a catalyst for greater academic and technical content integration, 3) fostering connections between secondary and postsecondary education, and 4) improving linkages with business and industry. The Vermont Department of Education (VDOE) and GSX have explored the use of a Process-Oriented Data Structure (PODS) to achieve these goals. PODS can efficiently and effectively integrate multiple standards into a coherent framework, which can, in turn, provide the basis for an all-inclusive credentialing system that addresses these challenges. The first initiative in Vermont based on this model was the General Service Technician credentialing, developed in partnership with the Vermont Automotive Dealers Association. Learn about the design and implementation methodology and experiences with presenters from GSX and VDOE.

[\(Powerpoint; 442 KB\)](#) [\(PDF; 150 KB\)](#)

12:15 a.m.-1:15 p.m. Lunch (Seasons on the Lake)

1:30 p.m. Buses Depart for Business-Industry Tours (choose one)
Sign up at registration for workforce education and training tours at the following locations. Buses will depart at approximately 1:30 p.m. and return to the hotel at approximately 4:30 p.m.
Tour I: IBM
Tour II: New England Culinary Institute
Tour III: Ben and Jerry's and Green Mountain Coffee Roasters



FRIDAY, May 16

8:00-9:00 a.m. Full Breakfast (Mezzanine)

9:00-10:30 a.m. General Session III (Green Mountain Ballroom)

The State of CTE in the U.S.

Kimberly Green, Executive Director
National Association of State Directors of Career
Technical Education Consortium (NASDCTEc),
Washington, DC
([Powerpoint](#); 957 KB)



Technical Skills Assessment Update and States' Assessment Systems

Open Discussion Among the States

10:30 a.m. **NAWI Business Meeting** (Burlington Conference Room)
All NAWI members/conference participants are urged to participate. Conference registration includes a one-year membership in NAWI.

11:30 a.m. Adjournment