

**RUTGERS**

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ANA G. MÉNDEZ

# Best Practices in Using Technology in HAZMAT Training

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San Juan, Puerto Rico

Sponsored in conjunction with



National Institute of  
Environmental Health Sciences  
*Worker Training Program*

## Back to the Future of Training Technology (1990's)



## WETP Advanced Training Technology (ATT) Initiative (1997)

- Explosive growth of ATT during the 1990's
- Increasing focus on costs of training
- Unique target audience
- Slow entry among grantees
- Lack of WETP ATT "policy"
- Digital divide in training delivery
- Preserve "Core Values" of peer learning
- High long-term cost of ATT infrastructure commitment

## WETP Core Values (1997)

- **Minimum Criteria (.120 App E)**
- **OSHA ATT Training Policies**
- **Peer-Instructors Inclusion**
- **Hands-on Instruction**
- **Maintain “Gold Standard” status**

## **WETP ATT Approach (1997)**

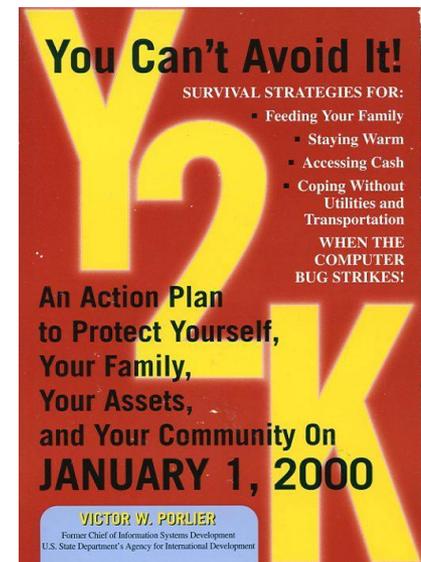
- **Technical Workshops**
- **Consensus process and phased-in approach**
- **Gain experience (lessons learned)**
- **Foster collaboration/sharing**
- **Self-assessments -- readiness & acceptance**
- **Establish basis for WETP Policy**

## **WETP ATT Guidance (1997)**

- **Integrate technology into training**
- **Establish uniform program guidance**
- **Preserve “core values” and comply with OSHA training policies**
- **Establish basis for cost effective ATT applications**
- **Identify new WETP ATT support program and mentoring process**

## Y2K NIEHS WETP Awardee Kickoff Meeting

- Electronic Program Administration for WETP/Awardee interface as part of the E-Gov (Electronic Government) Initiative
- Development of a shared web space for collection and storage of program information
- Interface of WETP/Awardee desktops, local area networks and web space
- Development of worker-centered technology transfer to create an E-learning platform for health and safety technical information
- Shared commitment to creating, integrating and deploying new digital tools by NIEHS, the Clearinghouse, & the awardee organizations



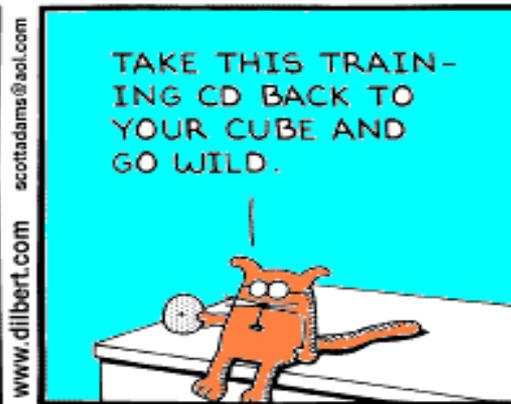
# NIEHS WTP Training Technology Components (2000)

**E- collaboration**

**E-certification**

**E-teaching**

**E-learning**



## **E-collaboration in Safety and Health Training (2000)**

**To support E-collaboration in safety and health training:**

- **For creating or updating safety and health curriculum, technology is enabling collaborative development of course materials by personnel widely separated geographically within the same organization and between collaborators working for different organizations. Some of these course materials exist and can be transmitted electronically via the Internet to the instructors and/or learners across the nation or world.**

## E-certification in Safety and Health training (2000)

To support E-certification in safety and health training:

- **Preparing and maintaining instructor competence is a critical issue in creating and maintaining the quality of health and safety training delivery and assuring adequate worker protection. This ATT option entails the use of online resources to improve instructor competence. The role of the instructor is highly valued in the WETP. Many grantee programs have systematic approaches to train, certify, and maintain instructor competence in both the content matter and in teaching skills.**

## E-teaching in Safety and Health Training (2000)

To support E-teaching in safety and health training:

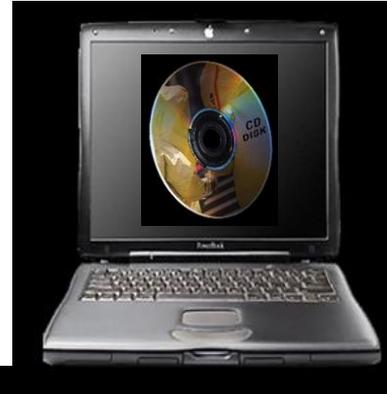
- **Augmenting live or virtual classroom training is becoming a more significant part of effective safety and health training delivery. A key WTP core value relative to ATT is to preserve the role of the trainer/instructor in classroom-like environments in the modeling, teaching and verifying of skills and knowledge. This ATT option for safety and health training delivery looks directly at ways technology can be used appropriately in live instructor-led, face-to-face and virtual classrooms.**

## E-learning in Safety and Health Training (2000)

To support E-learning in safety and health training:

- **Providing individualized or small-group based training in learning centers or to learner's desktop is a core part of the technology-supported learning process. As an ATT option, e-learning is used to enable individualized learning, at the learners convenience and own pace, prior to, as part of, after, or in place of classroom training. E-learning capability is now available to learners at their workplace (desktop, shared computer/kiosk, or learning center) and optionally at home or at the union hall.**

# LIUNA Smart Classroom



- Computer monitor
- Color calibration chart
- Blank monitor
- White Board
- 3D printer
- Computer workstation
- 3D
- DVD
- Trivia



## The Digital Divide in Occupational Health (2001)

- Shift of occupational health data into digital formats -- impact on workers.
- Information haves vs. have-nots for critical health data in the workplace?
- Shift in health & safety training from the classroom to the computer?
- High risk populations with low levels of computer literacy and access?

## Digital Challenges to the Occupational Health Community (2001)

- Creation of easily accessible digital information in occupational health
- Establishment of protocols for building computer literacy in worker populations
- Deployment of worker-centered training technology to build knowledge, access & empowerment
- Development of a blended learning approach that integrates hands-on and classroom training

## Bridging the Digital Divide (slowly)



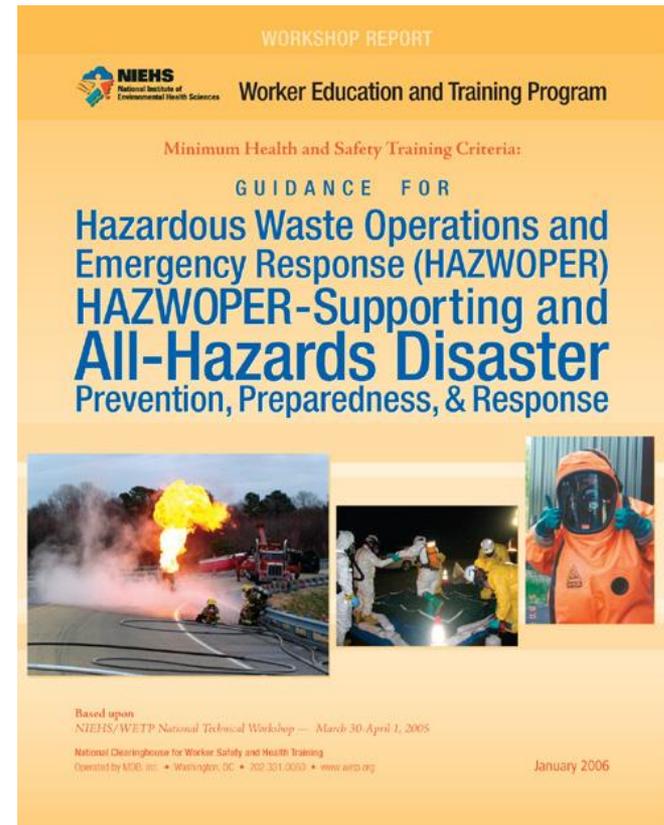
# Final Version of the NIEHS Minimum Health and Safety Training Criteria (2006)

## Guidance for Hazardous Waste Operations and Emergency Response, HAZWOPER-Supporting, and All-Hazards Disaster Prevention, Preparedness and Response

*Released January 2006*

### Major changes include:

- **Advanced training technologies application and integration;**
- **Requirements for additional training programs to support HAZWOPER work; and**
- **Post-9/11 all-hazards preparedness training.**



## NIEHS Minimum Health and Safety Training Criteria (2006)

- “Computer-based training methods can greatly augment the effectiveness and reduce the cost of hazardous waste worker training, but should not be the sole form of training when workers’ health and safety are at risk especially with respect to skills training.” (p. 2)
- “Adults learn from a variety of learning activities including role playing, case studies, audio-visual presentations, discovery exercises, planning exercises, group discussions, lecture-discussions, report-back sessions, drills and exercises, computer use, web site access, computer simulations, and blended approaches using integrated instructional technologies.” (p. 12)

## 2017 Blended Learning Challenges

- E-literacy/user-friendliness
- Supports group learning and empowerment learning
- Ease of use for blended learning by trainers
- Affordable to develop and deploy
- Enhances the discussion, lecture, and hands-on learning
- Process for evaluating the effectiveness for E-learning



"Roberta will now explain why the toxic fumes safety procedures were never written."