Evaluating the Effectiveness & Appropriateness of E-learning Training Technologies

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OPPORTUNITY ADVANCEMENT INNOVATION
in WORKFORCE DEVELOPMENT

Objectives

- Present previous experiences w/ interactive, blended, & stand-alone teaching techniques
- Offer observations: Suitability & delivery of some E-learning teaching techniques
- Describe evaluations & apparent effectiveness
- Transition to Sean Phillips' presentation: OAI's blended learning LMS

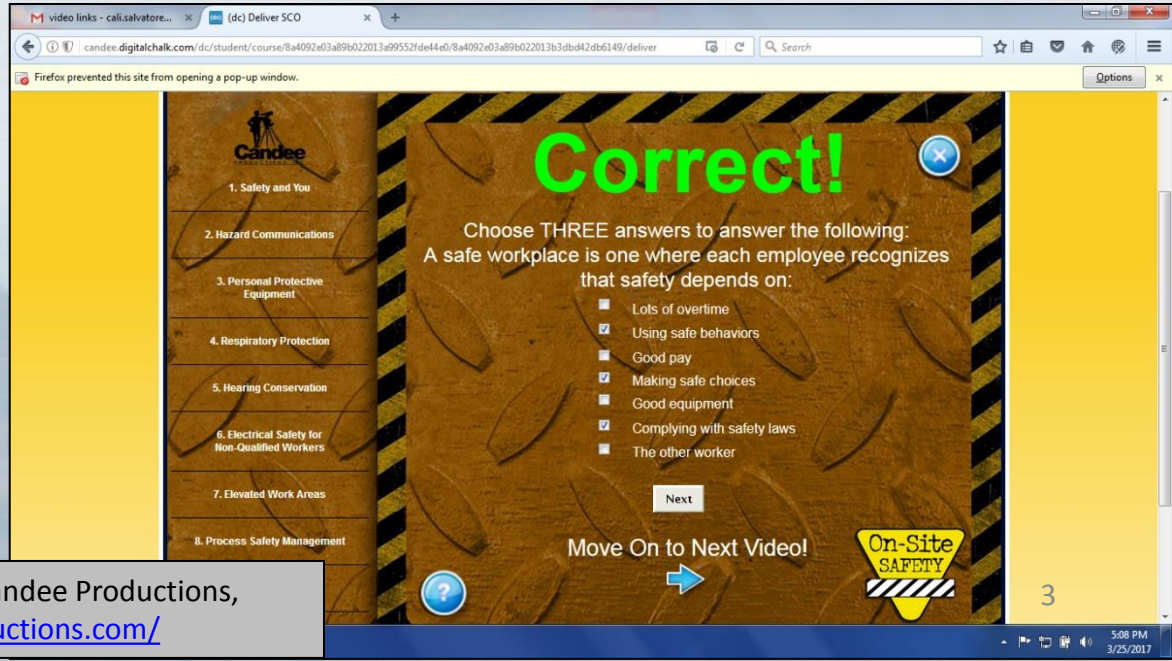
Previous experiences w/ emerging training technologies

Miscellaneous S&H

- Videos (1980s to present)

Learning evaluations: Pre- and post- multiple choice questions

Current status: Stand-alone programs still used in conjunction w/ proprietary interactive software



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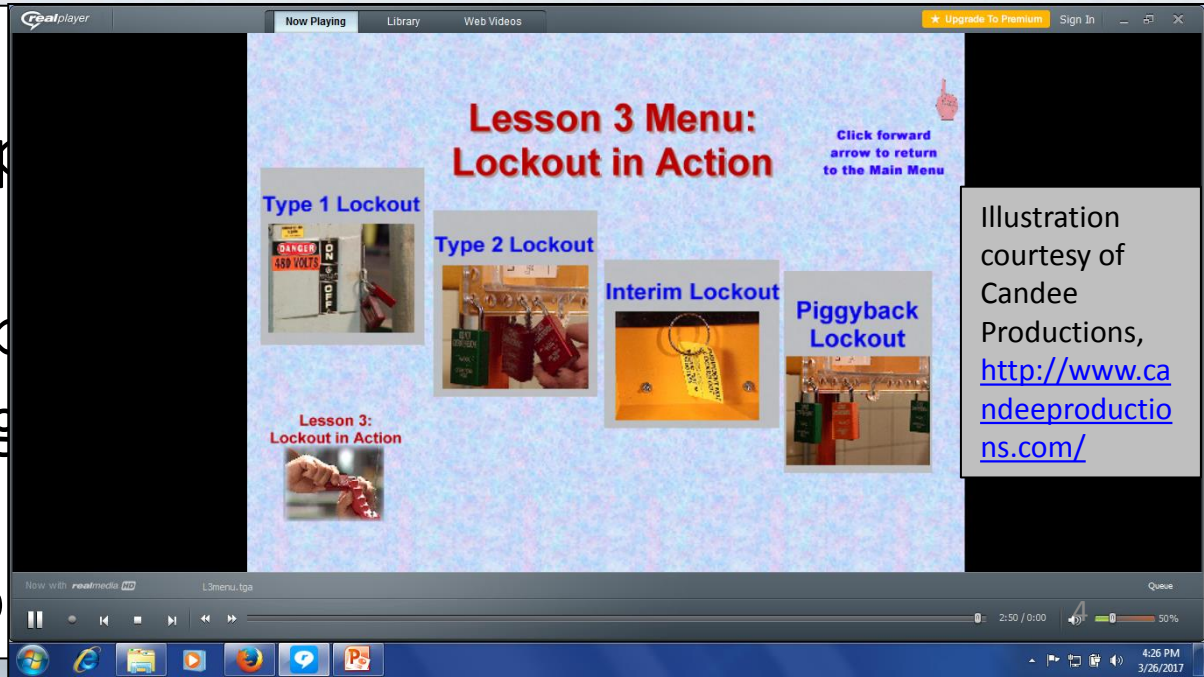
Experiences w/ emerging training technologies

LOTO

- Video/ graphics/ audio/ text/ D&D & multiple choice interactions/ exam & incorporated review;
- Distributed on company network & CD (1985, proprietary software)

Learning evaluations: Matching, D&D, Multip choice w/ review

Current status: Unusab -ware & elements, orig video, audio, graphics available, but dated fo



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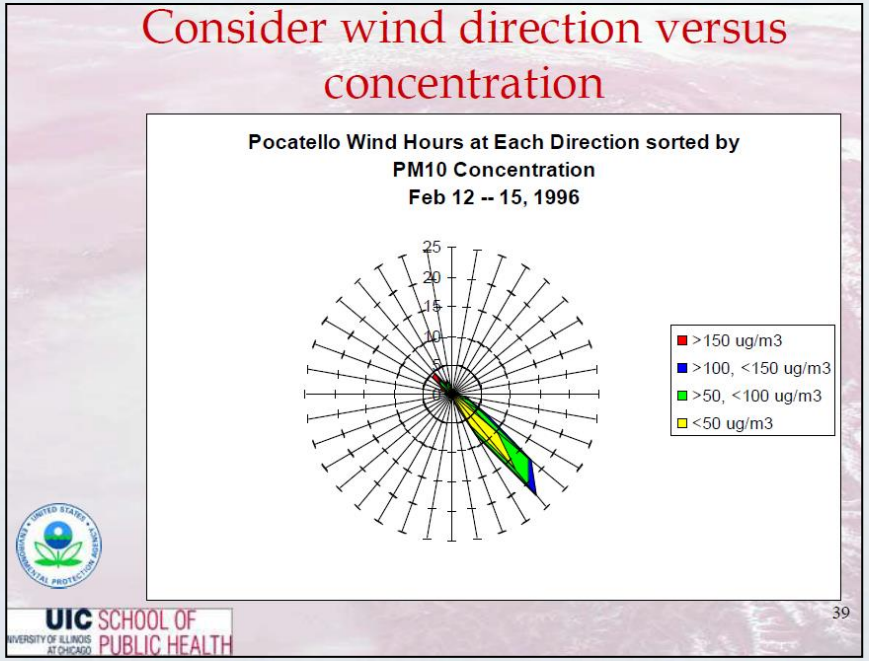
Experiences w/ emerging training technologies



<u>Environmental Statistics for Ambient Air Monitoring:</u>

- 3 programs: Embedded video/ audio/ powerpoint/ separate data on excel spreadsheets
- 7 more programs on Webex audio/ powerpoint

Learning evaluation: Compilation of viewer domain name, time in program, & emails/ calls to contact person

Current status: Program to play video embedded w/ powerpoint no longer useable

Experiences w/ emerging training technologies

Live training:

- Experiences in active presentations, excerpts of publically available video/ audio/ animated content
- Experiences incorporating proprietary & Creative Commons content

Learning evaluation: Request live feedback on specific observations & outcomes

Current status: Plenty of content available from youtube, CSB, Vimeo, & unrestricted public domain sources

Example: Clip from “Fat Man and Little Boy”
http://www.youtube.com/watch?v=AQ0P7R9CfCY

Primary strengths of certain e-learning technologies

- Ease constraints of time & location
- Techniques promote engagement, emotion:
  - Video
  - Audio
  - Games
  - Competition
- Instantaneous feedback of knowledge gained
- Allows directed on-line research into new topics

Efficacy of e-learning

Published research typically compares LMS to live instructor methods:

- Product utility (Learning outcomes)
- Cost effectiveness (Training time, travel, labor costs, infrastructure)
- User satisfaction (Ease of use, access)

Limitations of many (or all) advanced training technologies

- Incompatibilities across platforms & systems
- Maintenance & upgrades of platforms, user hardware & software
- Labor required continuously (Generally not recognized)
- Potential loss of individual elements (graphics, video, audio, other)
- Uncertainties about continuous funding

Standards for content & system compatibility

SCORM “Sharable Content Object Reference Model” (http://scorm.com/ & http://scorm.com/scorm-explained/)

- … set of industry technical standards for e-learning software products, code for e-learning interoperability. Governs online learning content & LMS communication. Does *not* address instructional design.

AICC (http://www.proedit.com/just-what-are-scorm-and-aicc/)

- Aviation Industry CBT Committee (AICC), compliant with at least 1 of 9 AICC Guidelines and Recommendations (AGRs). Not exclusively for aviation courses.

Tin Can (https://kzoinnovations.com/what-is-tin-can-and-scorm)

- … (or Experience API), e-learning software specifications, allows learning content and systems to communicate, record and track all types of learning experiences in Learning Record Store (LRS).

Timeless rules of thumb

- Focus on well-defined goals, concepts, core topics
- Capture elements using high production values (i.e., high resolution photos & video)
- Asset management (where, what, etc)
- Maintain knowledge of state-of-art, technological changes & compatibility
- Maintain knowledge about file size compression & formats

Validation (evaluation) of students

<u>Ideal: Multi-level engagement w/ material:</u>

- Awareness
- Content
- Concepts
- Motivation
- Skills

Social Ecological Model (SEM) Model

Validation (evaluation) of students

Usage tools:

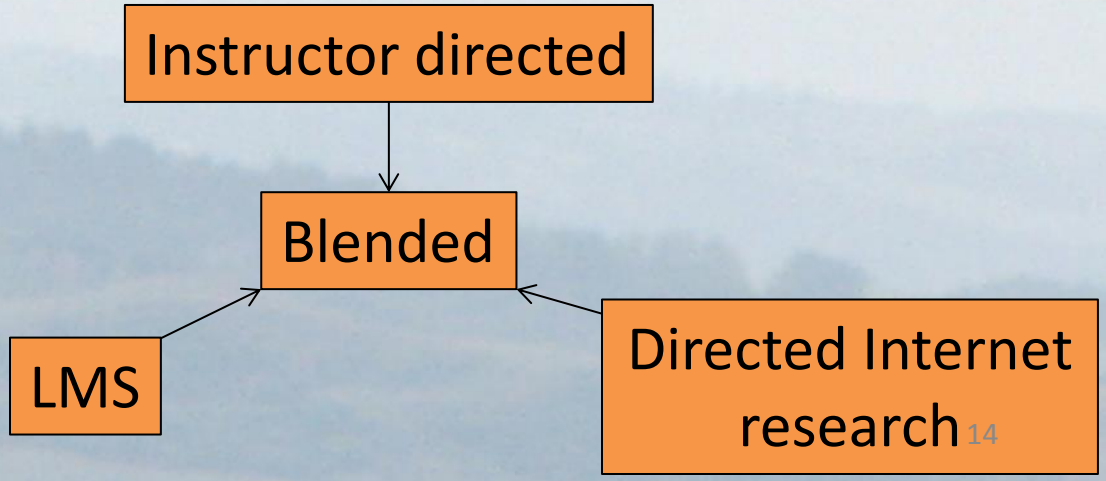
- Tracking users, time, advancement

Feedback and learning tools:

- Multiple choice
- Drag and drop
- Visual recognition
- Research
- Calculations
- Computer-related skills

OAI LMS

- Primarily instructor directed
- Incorporates almost all technical elements (video, audio, graphics, drag and drop, matching, fill-in-blank, multiple choice)
- Student works thru various modules
- Ideal for orientation, basic skills review
- Opportunities for critical thinking
- Sean Phillips will elaborate in a moment



Summary

Tensions inherent in tech advancement:

- This is better than old way
- This is worse than old way
- This is an opportunity to use better tools for job

Global vision

- Teach critical thinking; don't allow the technology to think for students
- Consider upcoming technologies & new skills to be taught