Evaluating the Effectiveness & Appropriateness of E-learning Training Technologies

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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

Illustration courtesy of Candee Productions, 
http://www.candeeproductions.com/
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, Multiple choice w/ review

**Current status:** Unusable software & elements, original video, audio, graphics available, but dated formats

Experiences w/ emerging training technologies

Environmental Statistics for Ambient Air Monitoring:
• 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 publicly 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


- ... 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.


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


- ... (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

Ideal: Multi-level engagement w/ material:

- 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