Selecting and Evaluating Digital Learning Materials in Higher Education

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Outline

- Greetings and Overview
- General Framework for Selecting and Evaluating Digital Learning Materials
- Educational Digital Libraries
- Evaluation Criteria
- Interactive Discussion: Comparing Digital Learning Materials to the Criteria
Selecting Learning Materials...

...begins with an understanding of the environment in which it will be used

1. Establish Course Goals
2. Identify Student Learning Outcomes
3. Design Learning Environment
   - Design Learning Process (e.g., individual or collaborative)
   - Design Learning Activities (e.g., computer or other non-computer)
4. Assess Student Learning

Student Learning Outcomes

Questions to Consider

TGI

7 Principles
Designing Computer-Based Learning Activities

1. Establish Course Goals
2. Identify Student Learning Outcomes
3. Design Learning Environment
4. Design Learning Activities (e.g., computer or other non-computer)
5. Design Learning Process (e.g., individual or collaborative)
6. Assess Student Learning
7. Search for Resources in Digital Libraries
8. Review Resources for Applicability
9. Select Resource And Continue Designing Activity
10. Computer Based Learning Activity
“Working” Description of Educational Digital Libraries

...or...how they go beyond traditional brick and mortar library on your campus or research digital libraries...

- Directly supports teaching and learning activities
- Provides support (through comments of use, lesson plans, etc.) for adapting or adopting resources developed by others
- Uses technology to support collaboration, personalization, recommendation of resources
- Covers a wide range of disciplines and allows for connections between disciplines
- Supports communities of users
Development Philosophy

• The difference is *learning*, not just bibliographic information retrieval
  – Teaching and learning require something more

• Guided by *user needs* and philosophy of education that is constructivist

• Link content to community and services

• Build integrative tools and incorporate “best of breed” tools from partners
www.merlot.org

• Collaborative to improve access to quantity and quality of teaching and learning resources and to help faculty identify and use those materials

• Institutional partnerships with 20+ systems of higher education in the U.S. and Canada
  – Reaching 8 Million students
  – 350,000 faculty

• Broad collection extending beyond STEM
  – Search, browse, catalog, comments, assignments
  – Including: History, Music, World Lang., etc.

• 14 Disciplines doing peer review
  – Including engineering in collaboration with NEEDS
NEEDS—A Digital Library for Engineering Education

www.needs.org

• Established circa 1992
  – from NSF Synthesis Coalition (engineering education reform)

• Collection of digital learning resources for engineering education (search, browse, catalog)

• Hosts *Premier Award for Excellence in Engineering Education Courseware*
Review Criteria

• **Premier Award Criteria**
  – Used for six years in the Premier Award competition
  – Designed and used to find the “best of the best”

• **MERLOT Evaluation Standards**
  – Developed in 1999
  – Applied in MERLOT’s peer review process
The Premier Award for Excellence in Engineering Education Courseware

• A national competition to identify and reward the authors of high-quality, non-commercial courseware designed to enhance engineering education
  – The *Premier Award* is about the entire experience of using the courseware by learners, not just the courseware itself

• A dissemination system to distribute the Premier Courseware (via CD’s, ASEE Prism ads, presentations at FIE and ASEE)
Judging and Review Process

• Convene Judging Panel
  – Professors and content experts, students, instructional designers, publishers

• Review supporting material in the submission packet
  – Author supplied responses to criteria
  – Evidence of student learning and evaluation
  – Testimonials

• Review and test the courseware
Premier Award Criteria: Instructional Design

Does the courseware enhance learning?

- **Learning Objectives**
  - Learning objectives are clearly stated and supported by the software.

- **Interactivity**
  - The learner is actively involved in the learning process—the interaction enhances learning.

- **Cognition/Conceptual change**
  - Learning appears to be significant and long lasting, and strong and useful cognitive models can be built.

- **Content**
  - The content is well chosen and structured.

- **Multimedia use**
  - Multimedia is used effectively and promotes the learning objectives and goals.

- **Instructional use/Adaptability**
  - The software can be used in a variety of settings.
Premier Award Criteria: Software Design

Is the courseware well designed and usable?

• **Engagement**
  – The software holds the interest of a diversity of learners.

• **Learner Interface and Navigation**
  – The software is easy to use.

• **Technical Reliability**
  – The software is free from technical problems.
Premier Award Criteria: Content

Is the content appropriate and well presented in the courseware?

- **Accuracy of Content**
  - The content is accurate and error free.

- **Appropriateness**
  - The content is appropriate for the scope of the Premier Award.