Selecting and Evaluating Digital Learning Materials in Higher Education

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Selecting Learning Materials...

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

- **White Balloon:** Teaching Goals Inventory (Tom Angelo and Pat Cross)
- **Yellow Balloon:** Gateway Coalition Student Learning Objectives
- **Pink Balloon:** Seven Principles for Good Practice in Undergraduate Education (Arthur Chickering and Zelda Gamson)
- **Green Balloon:** Questions to Consider When Selecting Courseware or Software for your Courses
- **Blue Balloon:** Selection Criteria for the Premier Award for Excellence in Engineering Education Courseware

Evaluation Standards for Learning Materials in MERLOT
To select Resources for Computer-based Learning Activities, we suggest you use the following handouts:

- Questions to Consider When Selecting Courseware or Software for you Courses (Green Handout)
- Selection Criteria for the Premier Award for Excellence in Engineering Education Courseware (Blue Handout)
- Evaluation Standards for Learning Materials in MERLOT (Blue Handout)

You can find courseware and other computer-based resources at:

- SMETE Digital Library (www.smete.org)
- NEEDS Digital Library (www.needs.org)
- MERLOT (www.merlot.org)
- BioSci Ed Net (www.biosciednet.org)
- iLumina (www.ilumina-project.org)
- DLESE (www.dlese.org)
“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
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
First competition in 1997

Goal to identify and reward the authors of high-quality, non-commercial courseware designed to enhance engineering education

*Premier Award* is about the entire experience of using the courseware by learners, not just the courseware itself

Disseminated over 10,000 CD’s in the last six years
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.