A NEAT approach: Development, use, and evaluation of communal learning objects

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What is our definition of a Learning Object?
"Any digital resource that can be reused to support learning."
Wiley, 2002

Gives students something to see, hear, and do

Modular Content Hierarchy

NEAT Project: Partner Schools
- Arkansas State University
- Colorado State University - Pueblo
- George Washington University
- Indiana University
- Montana State University
- University of Detroit
- University of Kansas
- University of North Dakota
- University of Northern Colorado
- University of Wisconsin

NEAT Objectives
1. Identify common teaching and learning challenges and create appropriate Learning Objects (LOs).
2. Create a virtual guide on how to incorporate LOs into courses.
3. Develop strategies for dissemination.
4. Document collaborative strategies to develop and share content.

Common teaching and learning challenges: create appropriate learning objects.
- Deans decided on the two main topics:
  - Health Disparities
  - Patient Safety
- Two Design Teams made up of faculty representatives
  - Delphi process for narrowing the subjects
  - Identified learning objectives to address
- Production Teams of content expert, instructional designer, and media specialist
- Peer review and revisions
Create a virtual guide

www.neatproject.org

Strategy for Dissemination: NEAT Learning Objects Repository

http://webcls.utmb.edu/neat/

• Partnership with University of Texas Medical Branch
• See list of Learning Objects in the Repository

Collaborative strategies to develop and share content

• Identification of common teaching challenges
• Development of learning objects
• Virtual Teaching Guide, Tips & Tricks
• NEAT Learning Objects Repository

Challenges for development and use of learning objects:

• Shelf-life
• Cost of developing and updating objects
• Need for technical/design support
• Dissemination and accessibility
  – Locating, evaluating, and using LOs
• Reusability – address course needs across settings
• Variable access to, and comfort with, technology
• Engaging faculty

How can we increase faculty participation in development and use?

• Address communication barriers
  – Teachers talk in terms of courses, units, lessons...
  – Designers speak of metadata, granularity, interactivity...

  The common ground is enhanced student learning.

Faculty perspective: When and why to use learning objects?

• For concepts that are difficult to grasp
• Single LO can meet needs of several learning styles
• Many exist making them readily accessible
• Typically easy for students to use
• Students can revisit LOs anytime, controlling their learning
Design Features of NEAT Project LOs

• Self contained units of digital content
• Designed around a single learning objective
• Retrievable from an online repository
• Can be reused/repurposed across courses
• Can be grouped to form an aggregate of content
• Can operate on a variety of learning systems
• Include a summary of concepts covered
• Interactive

Tips and Tricks - Development

• Start small – focus on meeting present needs
• Streamline design, development, and delivery
• Provide faculty support
• Involve users in development and evaluation
• Study exemplars of good learning objects
• Consider online resources to assist with design

Tips and Tricks - Use

• Fits with course objectives
• Addresses a difficult or essential topic
• Required vs. supplemental activity
• Linked with an assignment
• Obtain feedback from students/faculty

How to evaluate design?

• Was it well organized?
• Is it easy to navigate?
• Are the instructions clear?
• What computer skills are needed?
• Is it engaging?
• Is it interactive and/or manipulative?
• Does it provide the learner with feedback?
• Does it enhance learning?

Learner Evaluation

• Instructional content
• Interactivity
• Usability
• Effectiveness as learning tool
• Overall evaluation

Learner Evaluations of Learning Objects

<table>
<thead>
<tr>
<th>Percentage Rated Above Average or Greater</th>
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<tbody>
<tr>
<td>Contribution</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>Total</td>
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<td>Environment</td>
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### Learner Comments

- “I liked the format and readability”
- “much more attention holding than just straight textual information”
- “I would really like it if our assignments were in this format”
- “I liked that it asked you why you chose an answer-makes you think”
- “you could go back to review what you learned”
- “It kept me interested about the information”

### Faculty Comments

- Used by learners as a group
  - “good discussion”
  - “did not take any more class time than other discussion”
  - “more students were involved in the discussion”
- Used by learners individually outside of class
  - “good review of previously taught content”
  - “helpful for remediation and make-up activities for clinical”

### Why is this “NEAT?”:

- More timely than texts
- Unique and novel teaching modality
- More innovative learning opportunities
- Ability to share knowledge with broader healthcare community
- Collaboration with experts in online learning and design

### Examples of NEAT Project Learning Objects

- **Beyond the 5 Rights**
- **Swiss Cheese Model: How Systems Fail**
- **The Impaired Nurse: Impact and Indicators**
- **What is Race/Ethnicity?**
- **Preventing Hospital-Acquired Infections**