Introduction to Web-based Instructional Design

Columbia Center for New Media Teaching & Learning

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Learning *instructional design* strategies that help IT improve large classes.

1. What "works"?

2. How should you think about improving instruction?

3. What might a design for your course look like?
Crying Out Loud

What are your problems?
What are your experiences?
What are your expectations?
Overview

- Examples of working designs
- A design protocol that helps
- Practice makes perfect
Example 1: Cellular Biology @ Columbia

Course page with links to resources


What is the instructional goal?

What is their strategy?
Example 2: Classroom 2000 @ Georgia Tech

Redesigned classroom with whiteboard archive

http://www.cc.gatech.edu/fce/c2000/

What is the instructional goal?
What is their strategy?
Example 3: Studio Physics @ Rensselaer Polytechnic Institute

Multimedia tools integrated into the classroom / lab.

http://webct.rpi.edu:8900/public/78116009/

What is the instructional goal?

What is their strategy?
Example 4: Peer Instruction @ Harvard

Concept testing collaborations and just-in-time Web-tools

http://physics1.harvard.edu

What is the instructional goal?

What is their strategy?
Example 5: Math across the curriculum @ Dartmouth

Multidisciplinary courses and modules

http://www.dartmouth.edu/~matc/

What is the instructional goal?

What is their strategy?
Summary to this point:

Instructional Goals:
- lecture support
- lecture capture
- learning activity
- learning cycle

IT Strategies:
- web-sites - documents & forms
- classroom whiteboard - www archives
- multimedia integration
- classroom polling - e-messaging
Protocol for instructional design (a)

Most likely order of actions in planning a course

1. Content topics
2. Sequence
3. Schedule
4. Resources
5. Goals?
6. Assessments

- Format - lectures, discourse, writing ...
- Exercises - problems sets ...
- Demos - classroom, video clips ...
- Info - syllabi, notes, explanations ...
- Sources - text, instructor, reference ...

Large Class Strategies Workshop - II
Protocol for instructional design (b)

Alternate order / actions for designing a course

1. Learning goals
2. Content and skill objectives
3. Interrelationships
4. Resources
5. Assessments and evaluation
6. Schedule

- Tool - lecture, demo, IT [Web, e-poll, e-mail]...
- Activity - discourse, tutorial, reflection, collaboration, project ...
- Media - file, video, instrument, messaging ...
- Source - books, consults, data sets ...

Large Class Strategies Workshop - II
## Comparing design steps

<table>
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<th>Alternate</th>
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### Comparing learning resources

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Large Class Strategies Workshop - II
Protocol for instructional design (c)

New organization of course design: Learning Objects

Course Goals

- Content learning resources
- Skill learning resources

properties methods
objective(s) rendering
activities assessment
media evaluation
source interrelations
Envision your course:

- What is one learning goal?
- Some objectives that serve the goal?
- Your priorities among these?
- One learning resource to serve it?
Creating an object for your learning resource

- **Objective** - behavior, capability…
- **Activity** - discourse, reflection, collaboration, tutorial, project …
- **Media** - file, video, instrument, messaging …
- **Source** - books, consultants, peers, data archive…
- **Interrelations** - pre-requisites, reinforcers …
- **Assessment** - problem, survey …
- **Evaluation** - criterion for achievement of objective …
Where can you go from here?

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Teaching and Learning

➤ Consultation and clarification

➤ Individual attention from professionals serving your priorities in specific courses

➤ Production support
Summary

• Large class IT applications to instruction manifest increasing creativity

• Progression from lecture-centered to learner-centered pedagogy

• Complexity of learner-centered instruction benefits from new object-oriented design protocol

• OOD separates implementation from pedagogy