Introduction to Web-based Instructional Design

Columbia Center for New Media Teaching & Learning

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Introduction

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?

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Crying Out Loud

What are your problems?

What are your experiences?

What are your expectations?

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Overview

- Examples of working designs
- A design protocol that helps
- Practice makes perfect

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Example 1: Cellular Biology @ Columbia

Course page with links to resources

http://www.columbia.edu/cu/biology/courses/c2005/index.html

What is the instructional goal?

What is their strategy?

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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?

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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?

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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?

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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?

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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

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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

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

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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 ...

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Comparing design steps

Conventional	Alternate
1. Content topics	1. Learning goals
2. Sequence	2. Content and skill objectives
3. Schedule	3. Interrelationships
4. Resources	4. Resources
5. Goals	5. Assessments and evaluation
6. Assessments	6. Schedule

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Comparing learning resources

Conventional

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

Alternate

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

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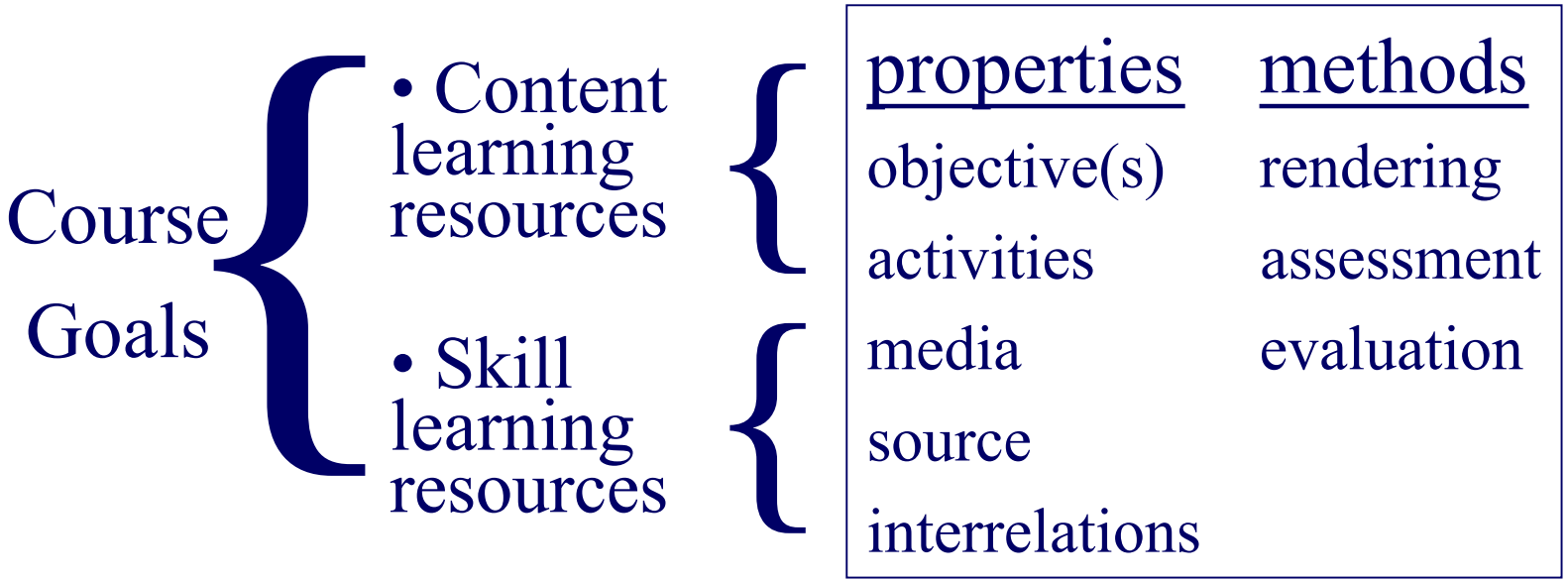
Protocol for instructional design (c)

New organization of course design: *Learning Objects*



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Practicum – apply to your course

Envision your course:

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

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Practicum … concluded

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 …

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CCNMTL assistance

Where can you go from here?

Columbia Center for New Media Teaching and Learning

- Consultation and clarification
- Individual attention from professionals serving your priorities in specific courses
- Production support

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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