Large Class IT Strategies

Columbia Center for New Media Teaching & Learning

Norman Chonacky - Department of Chemistry
Faculty will design and evaluate a large-class, IT exercise based on a proven educational strategy.
An Overview

1. Examine three illustrative cases
2. Characterize their capabilities and requirements
3. Identify needs for your course
4. Design a strategy and assessment tool for your course
5. Evaluate one another's designs
What are your problems?

What are your experiences?

What are your expectations?
Introduction to the Cases

- **Harvard** - *peer instruction* by out-of-class Web-based discussions / assignments and in-class concept tests

- **University of Michigan** - interdisciplinary course "activated" and focused by Web-site

- **Dartmouth** - modules integrate and contextualize math across curriculum
Rationale for each Case

• **Harvard** - *practice* rather than *recall* by active, student-centered, concept-based learning process

• **University of Michigan** - currency and research base prepares for *open-endedness* of global change process

• **Dartmouth** - integrative, context-based math to increase *outreach* and achievement
Rationale for all Cases

- Activate the passive
- Extend range of learning resources
- Build learning community to reflect and discuss
- Achieve "economies" of scale
Case 1: Harvard

**Introductory Physics 1**

**Peer Instruction:** When memorization is not enough

**Goal:** Practice of working with laws, not the literal laws themselves

**Objectives:**
- Exploit student interaction during/after lectures
- Use student assessment and feedback
Case 2: University of Michigan

Introduction to Global Change

Introductory course sequence:
investigate causes and potential impacts of environmental changes

Goal: Preparation to deal with global problems not yet fully understood

Objectives:
➤ Build on contemporary issues
➤ Draw faculty expertise from many areas
➤ Treat physical and human aspects
Case 3: Dartmouth

Mathematics across the Curriculum

Institution-wide, 5-year NSF project - broad mathematical literacy

Goal: Mathematics study integrated into other courses

Objectives:
- Create self-contained, application-driven modules
- Collaborate to improve dissemination suitability
- Include support materials to develop faculty: ideas for classroom work, software, on-line materials
Explore the Cases

You might try think about ...

- Large-class problem being addressed
- Measureable educational objective
- Educational strategy
- Technology support the strategy
- Values and costs (all kinds)

But for each case, cite what is:
- most obviously applicable to your course
- most clearly interesting or intriguing
Discuss the Cases

What's appropriate? What's intriguing?

Technology in service of education or *vice versa*?

What relates to your own course?
Community brainstorming:

1. Revisit your priorities - pick an educational **goal**.

2. Chose an **approach** that seems most promising.

3. How should we **organize** our application exercise development **work**?
Designing your Strategy

Design a prototype design that serves your educational goal.

A design should specify:

➤ What's your objective/purpose?
➤ What IT to use and your rationale?
➤ How will you know if it's working as intended?
Educational Issues

Identify educational objective(s) and educational strategy to achieve it.

Estimate the resources / level of effort required to adapt curriculum.
Technology Issues

Identify a technological strategy to be used:

- a method
- a rationale
- the likely level of investment (learning time and support) required
Evaluation Issues

What tool to **assess** the educational achievement?

What criterion to **evaluate** the assessment results?

What method of **feedback** to use?
Evaluation of the Designs

Reconvene as a whole to present results and discuss them.

Critique and evaluate one another's exercises.

Alternatively, draw some generalizations.
Our own Summary ...

Each case had a different scope.

IT used to:
- interact, contemporize, integrate.

Level of effort to develop any one of the examples was considerable.

Information technology infrastructures: comparable to those at Columbia.
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