Workshop Objective
Graduate students, through collaboration in a web-enhanced course, will explore and analyze different learner-centered approaches to teaching and learning in the process of designing a course.
or section which integrates technology.

**About the Workshop**

A six-week teaching with technology web-enhanced workshop for Northwestern University graduate students offered for the 3rd consecutive year in 2005.
Participation in the workshop is voluntary.

**Learning Goals for Participants**

Explore the course design process as they:

- Define learner-centered learning objectives that promote deep and active learning
- Develop learning objectives for their course/section
- Design a lesson that uses learner-centered instructional methods
- Align these methods with their original objectives and assessment plan
Create an assessment plan appropriate for their learning objectives
Evaluate the effectiveness of their design in achieving their outcomes

Evaluate the appropriate role of technology in promoting student learning as they:
Create a web-enhanced course/section
Explore different instructional technologies such as Online discussion boards, Presentation software, Online surveys and quizzes, Media, other Web resources eg. Online exercises, websites, blogs, podcasts
Analyze a range of strategies for incorporating these technology tools to determine which best supports their learning objectives
Consider the implications of using these technology tools for undergraduates

- Do the tools we use reflect the needs/preferences of the Millennial student?
- How can instructors promote Information Literacy?

**Workshop Methods**

We extend the learning experience beyond the weekly meetings through on-line discussions, readings, and project work. We ask students to critically examine how technology can enhance and increase student learning, and then incorporate such
technology-based methods into their respective courses and sections.

We consider these questions:

What are the adv/disadvantages of integrating technology to promote learning?

What questions should an instructor ask to decide whether incorporating technology is a useful strategy?

How does an instructor decide which tools are most appropriate for his/her learning objectives?
How can an instructor evaluate the effectiveness of using technology to promote deep learning?

Course Design Structure

1. What learning outcomes do you want your students to achieve, intellectually, practically, socially and personally, as a result of taking your section/course?

2. How will your section/course help your students achieve these outcomes?

3. How will you know whether the students in your section/course have achieved these outcomes?
4. How will you know how and if you and your section/course has contributed to your students achieving these outcomes?

Sample Exercise

You are part of a team of instructional consultants for your department that is trying to effectively integrate technology into their courses to address specific teaching/learning problems. Design a short demo for your department showing strategies for how to use technology to address this situation.

Every person in your group should have a different role:
1. Designer: Use Newlin & Wang article to help group focus on technology's role in learning (for groups of 4, choose 2 designers)
2. Manager: Keep group on task and set up Power Point presentation
3. Reporter: Present ideas to group using Power Point, answer questions

Sample Learning Issues for Exercise

Problem 1: Student Motivation
Your students are not engaged. They're not doing readings nor participating actively in class.

Problem 2: Depth vs. Breadth
You want students to engage deeply with material even though there is a large amount of material to cover.

Problem 3: Deep Learning
You want to shift student focus from performance on exams to learning.

Problem 4: Applying Theory
You need to give students a chance to practice skills, rather
than just absorb theory.

**Problem 5: Challenge Question**
How to teach students at different levels because of variation in their prior knowledge & training

**About Our Research**

1. Pre & Post Participation Interviews
2. Pre & Post Participation Approaches to Teaching Inventory (ATI) Survey
   A sixteen-item inventory designed to measure approaches to teaching. It is structured with two main scales: one that reflects a teaching-centered/information transmission
approach and the other, a student-centered/conceptual change approach.


**ATI Data**

**Paired T-Test Results for ATI Subscales, 2003-2005**

<table>
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<th>Program Year</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
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<tbody>
<tr>
<td>N</td>
<td>7</td>
<td>13</td>
<td>10</td>
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<tr>
<td>Pre-conceptual mean</td>
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<tr>
<td>p-value</td>
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<tr>
<td>Post-transmission mean</td>
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Nonparametric Test Results for ATI subscales, 2003-2005

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Results

We used t-tests to analyze the ATI data from the pre- and post-program responses to the Approaches to Teaching Inventory for each year of the program. There were statistically significant increases in the conceptual change subscale each year. There was a statistically significant increase in the transmission subscale in 2004. Since the n was
small, especially in 2003, we also used a non parametric test (Wilcoxon Signed Rank Test), which mirrored the t-test results. There was a significant increase in the conceptual change subscale but not in the transmission subscale.

**Discussion**

Participants generally move away from a transmission model of teaching, which is more teacher-centered, to a conceptual change
model, which is more student-centered.

Mary Schuller
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