



*Adding Interactive Components to
a Web-based Chemistry Course*

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Dynamics of a web-based course

Shift in focus

- From reliant on instructor to self reliant
- From passive learning to active learning



Creating the “active learning” course

- Interactive / constructivist approaches
 - questions & immediate feedback
 - instruction that changes with individual student needs
 - puzzles
- Motivation
 - activities must hold the student's interest
- Take advantage of technological abilities
 - randomization, grading, feedback



Assessment of activities

Amount

- Does amount matter?

Enough already!

- distracting
- tedious

Give me more!

- feel ill prepared

Quality

- What's the role of the activity?
- Can we quantify its effect?
- Is the activity enjoyable?
- Is the activity valuable?



Example of lecture material





Flash quiz activity

Benefits of flash quizzes

- Provides active response format for students
- Change of pace within instructional material
- Immediate feedback to students
- Allows instructors to emphasize key concepts
- Stores responses for instructors



Flash quiz activity

Examples

Flash Quiz #1

Flash Quiz #2

Flash Quiz #3

Flash Quiz #4

Flash Quiz #5

Student Opinion

“clicky”, cumbersome

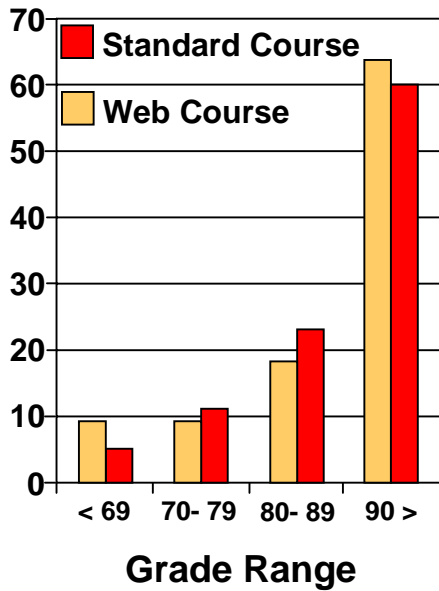
Easy/quick

know what will be on the quiz

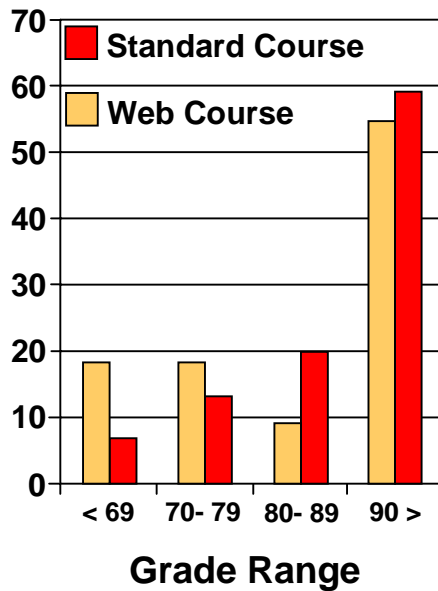
“cool”, helpful

Flash quiz activity

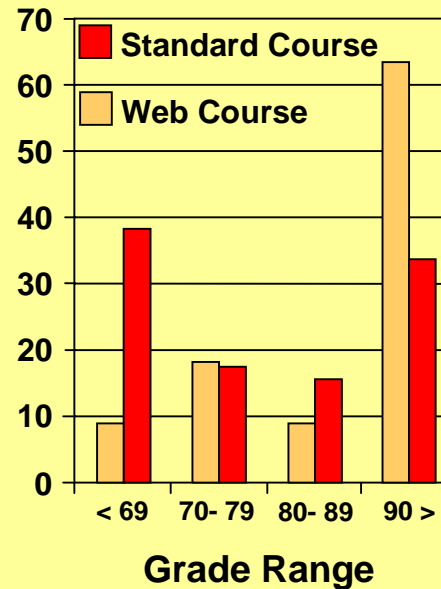
Exam 1 Grade Distribution



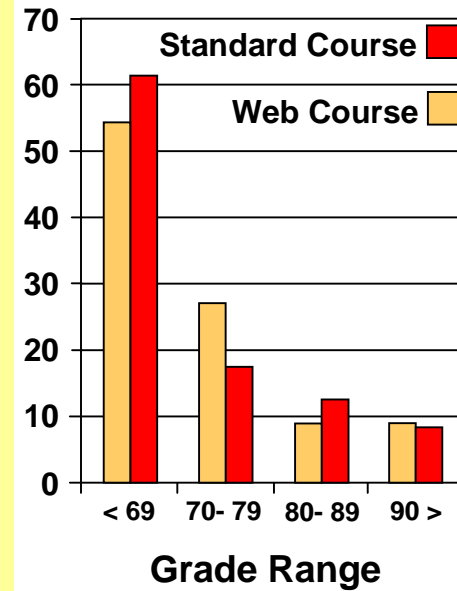
Exam 2 Grade Distribution



Exam 3 Grade Distribution



Exam 4 Grade Distribution





Future work on flash quizzes

- Quantify gains in student understanding
 - Concept map exercise
- Define role of flash quizzes
 - Reinforcement activity
 - Application of concepts
- Create instructor interface
 - Ease construction of flash quizzes
 - Increased flexibility of formats