

Plan, Implement, Assess, and Convince

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Why Redesign?

Motivation



Objectives

Intrinsic Factors
'Classroom'

Student Learning
Student Success Rates
Skill development

Extrinsic Factors
'Outside classroom'

Student Success Rates
Use of technology
Save \$: "more with less"
Get \$: grant or award
Administrative incentive

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Measuring Redesign Success

1. Define successful outcomes
2. Develop / Identify assessment tools

Large Introductory Biology

Successful Outcomes:

- Increase student learning
- Strengthen problem-solving skills
- Increase student engagement

Assessment:

- Share exam questions: control/redesign
- Score questions: Reasoning Index
- Student surveys, interviews
- Instructor interviews

Introductory Biology

Assessment:

- Shared exam questions: control/redesign
61% → 73%
- Score questions: Reasoning Index
23% → 67% higher reasoning
- Student surveys, interviews
↑ engagement, enthusiasm
- Instructor interviews
↑ enthusiasm, interaction with students

Interdisciplinary Lab Courses

Successful Outcomes:

- Increase student learning
- Develop skills of a scientist
- Develop positive attitude about practice of science

Assessment:

- CURE Survey- pretest and posttest surveys
- Midsemester Review
- Student course evaluations
- Instructor and TA interviews

Interdisciplinary Lab Courses

CURE Survey Results

Skills: Reported large gains in:
(>4 on 5 pt scale;5=very large gain)

analyzing data
presenting results
computer modeling
being responsible for part of project
working in small groups
collecting data
maintaining a lab notebook

Attitudes toward Science

(1-5, 1=strongly agree)

	PreCourse	PostCourse
You can rely on scientific results to be true & correct.	2.94	3.18
Career Goals: Plan to pursue life science PhD	2/18	6/13

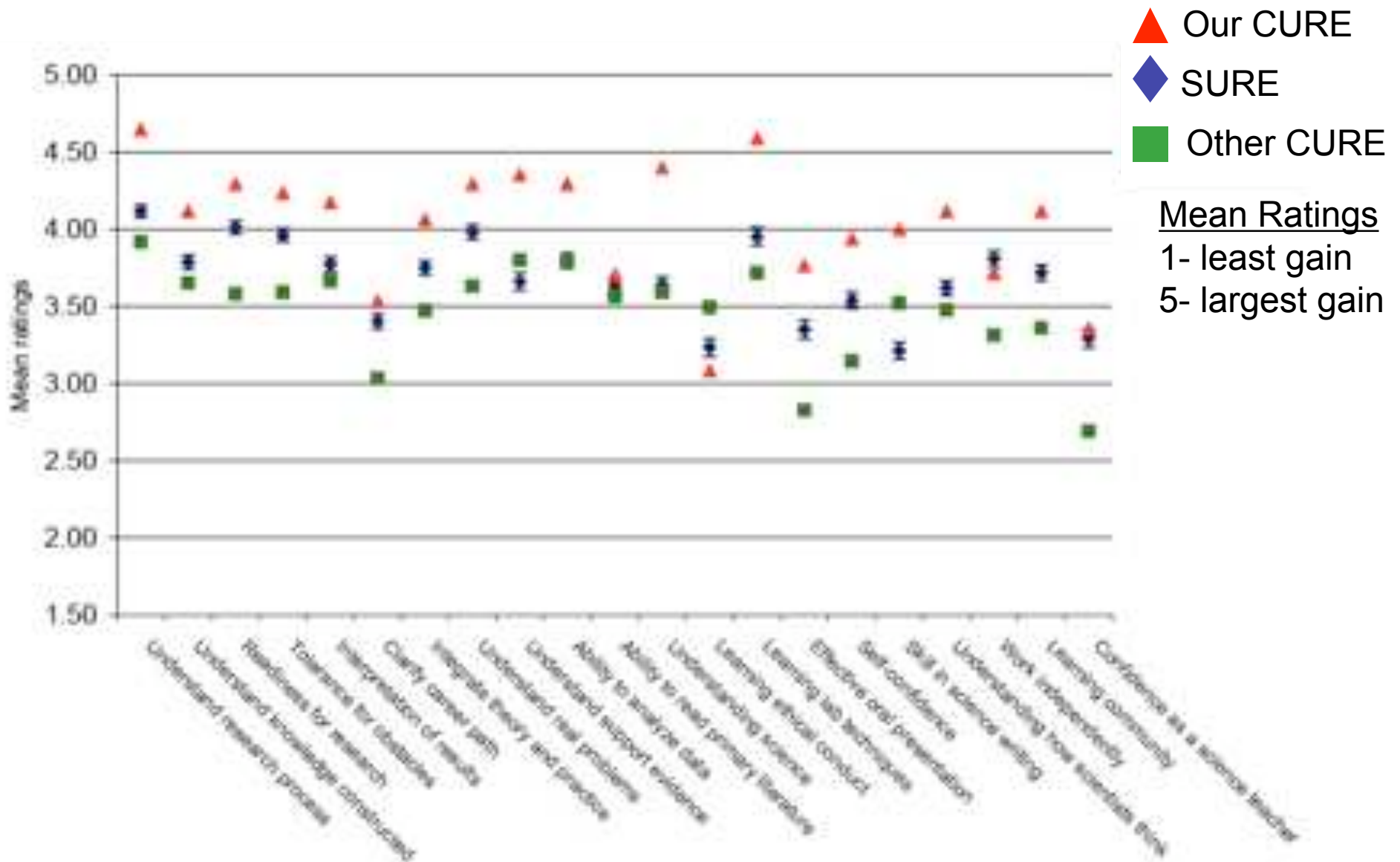
Student and Instructor Feedback: Very high satisfaction

“intensive hands on lab experience”

“encouraged to solve unexpected issues and problems”

“liked the independence..felt like we were doing real research”

Interdisciplinary Lab Courses



Histology Laboratory Experience

Successful Outcomes:

- Increase student learning
- Improve imaging skills
- Increase interest / engagement

Assessment:

- Performance on lab practical
- Student time on task
- Midsemester Review
- Student course evaluations

