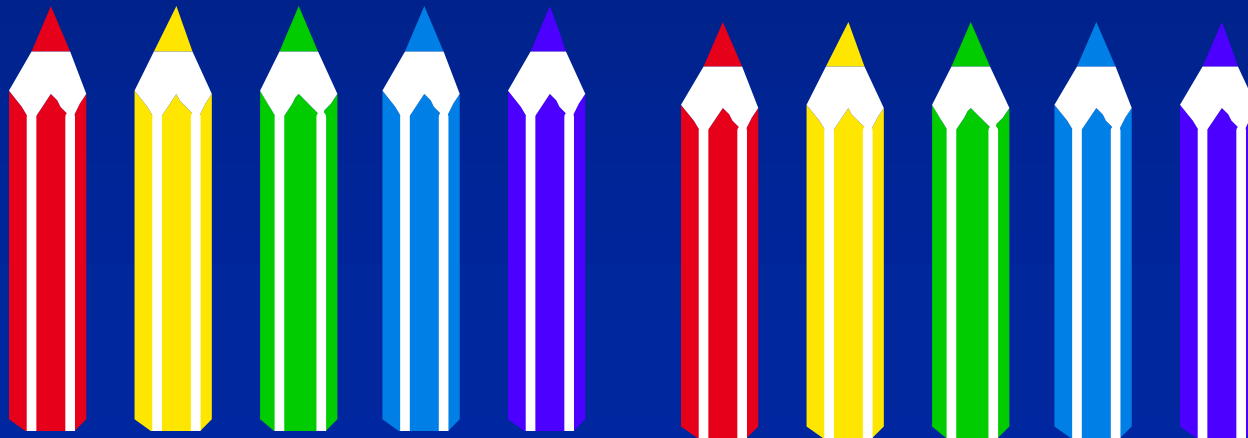


IMPROVING STUDENT LEARNING WHILE REDUCING INSTRUCTIONAL COSTS: The Case for Redesign



TODAY'S DISCUSSION

- Overview of the Methodology and Findings of the Successful Redesign Projects
- Examples from Successful Institutions
- Two Opportunities to Get Started





- **Established in 1999 as a university Center at RPI funded by the Pew Charitable Trusts**
- **Became an independent non-profit organization in 2003**
- **Mission: help colleges and universities learn how to use technology to improve student learning outcomes and reduce their instructional costs**

NCAT PROGRAMS

- **Program in Course Redesign (PCR)**
 - 30 institutions
- **Roadmap to Redesign (R2R)**
 - 20 institutions
- **Colleagues Committed to Redesign (C2R)**
 - 60 institutions
- **State and System-based Programs**
 - 80+ institutions
- *Changing the Equation*

TRADITIONAL INSTRUCTION

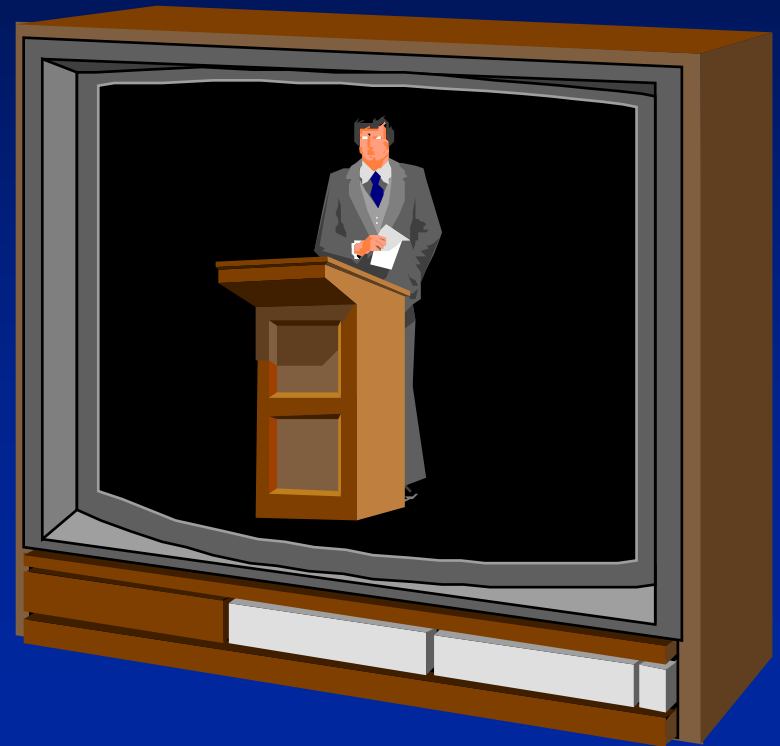


Seminars



Lectures

“BOLT-ON” INSTRUCTION



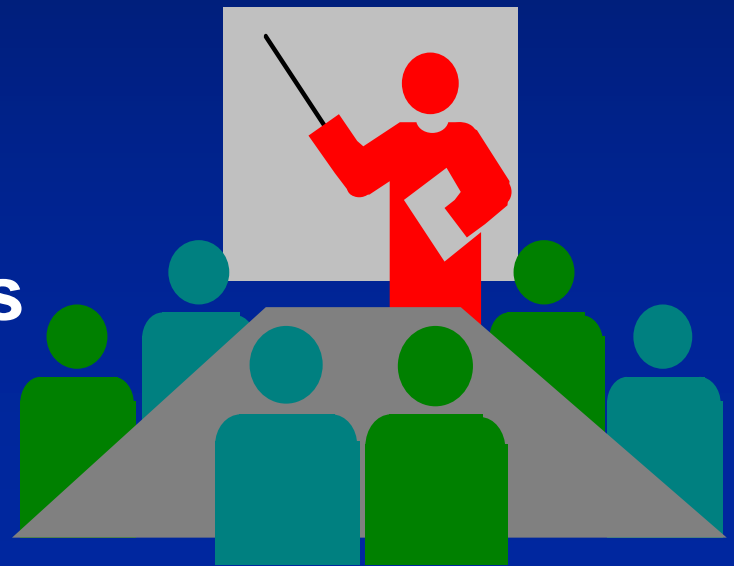
WHAT'S WRONG WITH THE LECTURE?

- Treats all students as if they are the same
- Ineffective in engaging students
- Inadequate individual assistance
- Poor attendance and success rates
- Students fail to retain learning



WHAT'S WRONG WITH MULTIPLE SECTIONS?

- In theory: greater interaction
- In practice: large class size
- In practice: dominated by the same presentation techniques
- Lack of coordination
- Inconsistent outcomes



WHAT DOES NCAT MEAN BY COURSE REDESIGN?

Course redesign is the process of redesigning whole courses (rather than individual classes or sections) to achieve better learning outcomes at a lower cost by taking advantage of the capabilities of information technology.



The **National Center** for
Academic Transformation

PROGRAM IN COURSE REDESIGN

**To encourage colleges
and universities to
redesign their
approaches to
instruction using
technology to achieve
cost savings as well as
quality enhancements.**



**50,000
students
30 projects**

SUMMARY OF RESULTS

- 25 of the original 30 showed improvement; 5 showed equal learning
- 24 measured retention; 18 showed improvement
- All 30 showed cost reduction
- Results in subsequent national and state and system programs have continued to show comparable results



MANY DIFFERENT COURSES

- **Mathematics**

- Developmental Math
- Pre-calculus Math
- College Algebra
- Discrete Math
- Introductory Algebra
- Elementary Algebra
- Beginning Algebra
- Intermediate Algebra
- Linear Algebra

- **Statistics**

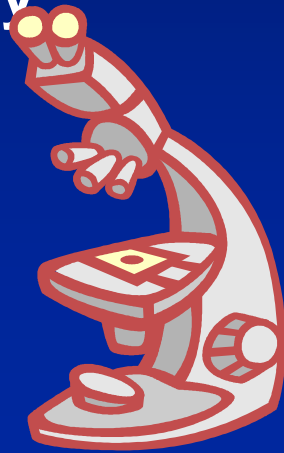
- Business Statistics
- Introductory Statistics
- Elementary Statistics
- Economic Statistics

- **Computing**

- Computer Programming
- Information Technology Concepts
- Computer Literacy
- Information Literacy
- Tools for the Information Age

- **SCIENCE**

- Anatomy and Physiology
- Astronomy
- Biology
- Ethnobotany
- Chemistry
- Geology



- **SOCIAL SCIENCE**

- American Government
- Macro and Microeconomics
- Psychology
- Sociology
- Urban Affairs

- **HUMANITIES**

- Developmental Reading
- Developmental Writing
- English Composition
- Communication Studies
- Understanding the Visual and Performing Arts
- History of Western Civilization
- Great Ideas in Western Music
- Spanish
- World Literature
- British Literature
- Women and Gender Studies



- **PROFESSIONAL**

- Elementary Education
- Education: The Curriculum
- Engineering
- Organizational Behavior
- Public Speaking
- Accounting
- Nursing
- Nutrition

ALL TYPES OF INSTITUTIONS

- **Public**
- **Private**
- **Community Colleges**
- **Research Universities**
- **Comprehensive Universities**
- **State Colleges**

WHY REDESIGN?

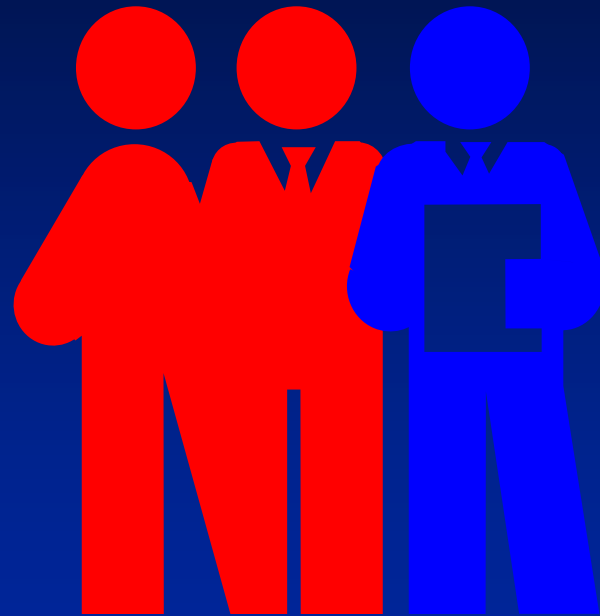
Have a high impact!

Consider

- **High drop-failure-withdrawal rates**
- **Student performance in subsequent courses**
- **Students on waiting lists**
- **Student complaints**
- **Other departmental complaints**
- **Lack of consistency in multiple sections**
- **Difficulty finding qualified adjuncts**

WHY INSTITUTIONAL TEAMS?

- Faculty experts
- Administrators
- Technology professionals
- Assessment experts



WHAT DO THE FACULTY SAY?

- “It’s the best experience I’ve ever had in a classroom.”
- “The quality of my worklife has changed immeasurably for the better.”
- “It’s a lot of work during the transition--but it’s worth it.”



REDESIGN MODELS

- Supplemental – Add to the current structure and/or change the content
- Replacement – Blend face-to-face with online activities
- Emporium – Move all classes to a lab setting
- Fully online – Conduct all (most) learning activities online
- Buffet – Mix and match according to student preferences
- Linked Workshop – JIT workshops linked to a college level course



REDESIGN CHARACTERISTICS

- Redesign the whole course—not just a single class
- Emphasize active learning—greater student engagement with the material and with one another
- Rely heavily on readily available interactive software—used independently and in teams
- Mastery learning—not self-paced
- Increase on-demand, individualized assistance
- Automate only those course components that can benefit from automation—e.g., homework, quizzes, exams
- Replace single mode instruction with differentiated personnel strategies



Technology enables good pedagogy with large #s of students.

ENGLISH COMPOSITION

Tallahassee CC

- **Diverse Student Population**
- **Many students still in need of remediation**
- **Many class hours used to review grammar skills**
- **High inconsistency among sections**
- **Poor success rates (<60%)**

ENGLISH COMPOSITION

Tallahassee CC

GOAL: Student Centered Learning Environment

- Individualized diagnosis and prescription
- Active participation
- Meaningful writing assignments
- Collaboration
- Flexibility



ENGLISH COMPOSITION

Tallahassee CC

Traditional

- 3000 students annually in sections of ~30
- ~50% lecture
- ~50% discussion
- High inconsistency among sections
- High use of full-time faculty to help increase consistency

Redesign

- 3000 students annually in sections of ~30
- Taught in computer labs
- Interweave writing and reading
- Menu of reading & writing activities
- Discussion board for Peer Collaboration
- SMARTHINKING tutors

ENGLISH COMPOSITION

Tallahassee CC

QUALITY IMPROVEMENTS

- Individualized programs of study
- Immediate feedback
- Increased time-on-task
- Decreased feedback time on writing assignments
- More time for writing activities, conferencing, collaborative activities, critiques, & discussion
- More time to explore ideas, and develop critical thinking skills
- More time for one-on-one and small group conferencing



ENGLISH COMPOSITION

Tallahassee CC

OUTCOMES

- **Increased success rates, 60.7% in traditional and 68.4% in redesign**
- **Increased time on task**
- **Writing about literature**
- **Increased communication and interaction about writing**

ANATOMY & PHYSIOLOGY

Central Ohio Technical College

- High DFW rates for traditional class (~35-40%)
- Moved all lectures and content online
- Meet 2 hours per week for lab
- Exam averages nearly identical
- DFW rates
 - Redesigned sections: **9%**
 - Traditional section: **29%**
- **32% Increase in Enrollment**
- **Significant cost reductions**
 - Traditional = \$184.30/student
 - Redesigned = \$78.60/student

DEVELOPMENTAL READING

Northeast State Community College

Problems to Solve

- **High failure and withdraw rate in Developmental Reading (up to 45% semester average)**
- **“One size fits all”; lack of individual assistance; instructor centered**
- **Hindrance to students’ timely progression through college**
- **Small classes and high cost**
- **Annual enrollment ~450 students**

DEVELOPMENTAL READING

Northeast State Community College

Redesign

- **Reading Emporium (totally lab-based)**
- **Weekly meeting to learn study skills, note taking and other useful skills**
- **Students required to spend 2 hours in the lab with assistance available**
- **Using MyReadingLab with diagnostics, individualized study plan, quizzes and readings**

DEVELOPMENTAL READING

Northeast State Community College

**Average Gains on
the Nelson-Denny Reading Test
(Difference between Pre- and Post-test
Scores)**

- Traditional – 11 points**
- Spring 08 Pilot – 15 points**
- Fall 08 Full Implementation – 21 points**

DEVELOPMENTAL MATH

Cleveland State Community College

The Problem

- High failure rates
- Low attendance
- Good students stuck for 1 – 2 semesters
- Roadblock to student success

The Solution – Course Redesign

- Try something new
- Allow individualized progress depending upon needs
- Utilize online learning systems
- Remove roadblock to success

TBR Involved In System-Wide Redesign

DEVELOPMENTAL MATH

Cleveland State Community College

Developmental Math

- **Success rate in developmental math improved from 54% to 72%**
- **Intermediate Algebra had a 79% success rate in Fall 2008**

College Level Math

- **Success in three redesigned courses increased from 72% to 75%**
- **33% increase in students passing a college level math course 2008-09**
- **More students passed a college level math course in Spring 2009 than were enrolled in a college level math course in Spring 2008**

Developmental Students In College Level Math

- **Fall 2008 developmental students 79% success rate in math while college math success rate was unchanged at 72%**

DEPARTMENTAL REDESIGN

Cleveland State Community College

Why Stop There?

3 Developmental Math Courses

- Basic Math, Elementary Algebra, Intermediate Algebra

6 College Level Math Courses

- College Algebra, Statistics, Finite Math
- Precalculus I, Precalculus II, Applied Calculus

2 Computer Labs, 4 Computer Classrooms

- 60 computer lab on main campus in Cleveland
- 35 computer classroom/lab on campus in Athens

1000+ Students Enrolled In 9 courses Each Semester

NEW SOLUTIONS TO OLD PROBLEMS

Continuous Enrollment Plan

- **Students may start in any redesigned math course when they finish the course they are currently enrolled in, without switching classes**
- **Students add second class to schedule if they complete it**
- **46 students completed multiple math courses in Fall 2008**
- **33 of these exited developmental math in one semester**
- **2 students completed 3 courses in one semester**

Back to the One Room Schoolhouse

- **Low enrollment classes always a problem**
- **Solution: Two classes in same room at the same time**
- **New course offerings at all campuses in Fall 2009**
- **Scheduling flexibility increase due to this strategy**

FACULTY BENEFITS

- **Increased opportunity to work directly with students who need help**
- **Reduced grading**
- **Technology does the tracking and monitoring**
- **More practice and interaction for students without faculty effort**
- **Ability to try different approaches to meet different student needs**
- **Opportunity for continuous improvement of materials and approaches**

TWO OPPORTUNITIES

- *Changing the Equation*
 - Program for Community Colleges –
Redesign of Developmental Math
Sequence
- Redesign Alliance Annual
Conference

REDESIGN OF DEVELOPMENTAL MATH

Changing the Equation

- **Open to Community Colleges only**
- **Redesign the sequence of developmental/remedial math courses**
- **Guidelines available on the NCAT Website (www.theNCAT.org)**
- **Grants of \$40,000 to selected institutions to help support redesign**

THE REDESIGN ALLIANCE

4th Annual Conference



When: March 28-30, 2010

**Where: The Rosen Centre Hotel
Orlando, Florida**

**Hotel Reservation Deadline:
February 26, 2010**

**Meeting Registration Deadline:
March 19, 2010**

THE 4th REDESIGN ALLIANCE CONFERENCE

Brings together

- **Faculty and Administrators**
 - Who are experienced with redesign
 - Who are engaged in a pilot
 - Who are just getting started
 - Who are thinking about the ideas but have not yet begun
- **Corporate representatives who contribute materials and services to redesign**
- **Redesign Scholars with special expertise**

Provides an opportunity to exchange ideas and gather multiple perspectives on issues and challenges

IMPROVING STUDENT LEARNING AND REDUCING INSTRUCTIONAL COSTS: The Case for Redesign

Carolyn Jarmon, Ph.D.

cjarmon@theNCAT.org

www.theNCAT.org



The **National Center** for
Academic Transformation

QUESTIONS?

THE TRUSTEES' ROLE

- **How can trustees foster a stronger “Culture of Innovation” at their College?**
- **What questions should trustees be asking their College administrators to support stronger innovation and risk-taking?**
- **What policies encourage an institution to embrace such a culture? Does your board have policies in place that encourage/discourage an innovative culture?**
- **What resource trade-offs might encourage such a culture? Retard moving forward? What role, if any, do trustees have in these trade-offs?**