

CHANGING THE EQUATION

Scaling a Proven Innovation



REDESIGN SCHOLARS

- Betty Frost – Jackson State CC
- Jamie Glass – U of Alabama
- Phoebe Rouse – LSU
- John Squires – Chattanooga State CC
- Kirk Trigsted – U of Idaho
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CORPORATE PARTNERS

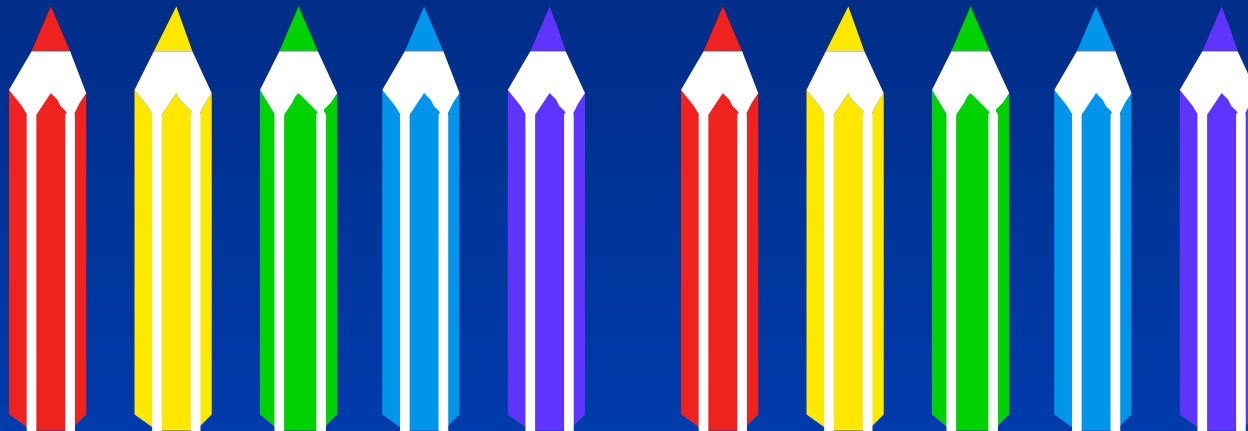
- Carnegie Learning
- Hawkes Learning Systems
- McGraw-Hill
- Pearson Education



CHANGING THE EQUATION

Planning for Course Redesign

- Review of Readiness Responses
- How-to Panels
- Break-out Sessions
- Preparing the Final Proposal



CHANGING THE EQUATION

Key Characteristics

- **Goal: to scale a proven innovation that increases student success at reduced cost, the Emporium Model**
- **25+ institutions will be selected to receive a \$40,000 grant**
- **Support collaboration among NCAT staff, Redesign Scholars and institutional teams**
- **Key elements that you must include**
 - **1) Emporium Model**
 - **2) Modularization**
 - **3) All remedial and developmental courses**

FINAL PROPOSAL DUE 8/1/10

- Emporium model: how you will embody the Six Principles
- Lab component: how it will operate
- Learning materials: what you plan to use
- Cost reduction strategy: what you will do with the savings
- Five critical implementation issues: how you will address
- Timeline: pilot in spring 2011; full implementation in fall 2011
- Project budget: how the grant will support your redesign

FINAL PROPOSAL DUE 8/1/10

- **Worksheets and Forms**
 - **Assessment Forms (2)**
 - **Course Completion Forms (2)**
 - **Cost Savings Summary Form (CSSF)**
 - **Scope of Effort Comparison Form**

Grant awards will be made on 8/15/10.

http://www.theNCAT.org/Mathematics/CTE/CTEPlanning_Resources.htm

- **Six Principles of Successful Course Redesign**
- **Four Models for Assessing Student Learning**
- **Cost Reduction Strategies**
- **Things You Ought To Consider**
- **Five Critical Implementation Issues**
- **Course Redesign Proposal Example**
- **Assessment Forms**
- **Cost Savings Summary Form**
- **Scope of Effort Comparison**
- **Planning Checklist**



READINESS CRITERIA

What were we looking for in your responses?

- Understanding of the program
- Evidence of preliminary planning
- Team response—not by one person



READINESS CRITERION #1

Course Sequence

- What impact would redesigning the course sequence have on the curriculum, on students and on the institution—i.e., why do you want to redesign this course sequence?



YOU ARE NOT ALONE

% Placing in Developmental

• 20% - 30%	7%
• 40% - 50%	10%
• 60% - 70%	34%
• 70% - 80%	21%
• 80% - 90%	24%
• 90%+	3%



YOU ARE NOT ALONE

Average Success Rates

• <40%	11%
• 41% - 50%	26%
• 51% - 60%	43%
• 61% - 70%	15%
• >70%	5%



YOU ARE NOT ALONE

of Developmental Courses

- 2 courses 26%
- 3 courses 45%
- 4 courses 15%
- 5 courses 6%
- 6 courses 8%



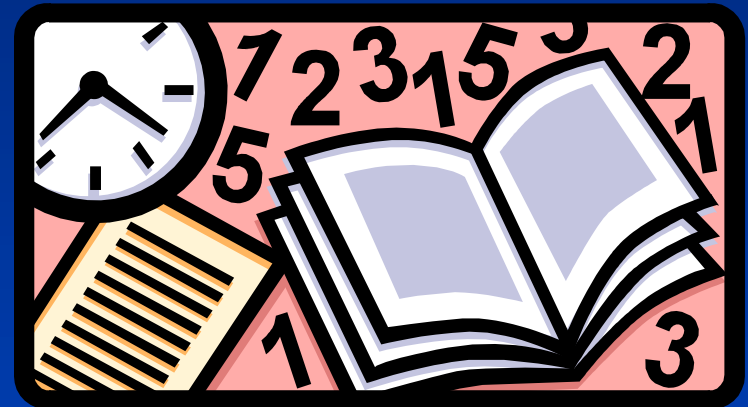
FACTORS YOU CITED

- **High drop-failure-withdrawal rates**
- **Student performance in subsequent courses**
- **Growing enrollment pressures**
- **Lack of consistency in multiple sections**
- **Disparate range of student skill levels**
- **Misplaced students**
- **Students who place but do not enroll**
- **Difficulty in identifying gaps in students' knowledge**
- **Student frustration with time required to complete the developmental sequence and its associated costs**
- **Redundancy in different courses in the sequence**

READINESS CRITERION #2

Redesign Model

- How would you implement the Emporium Model on your campus?
- What constraints may impact your implementation?



PLANNING FOR THE LAB COMPONENT

- 23% Have a clear plan
- 32% Have a good start on a plan with some gaps and to fill them
- 45% Do not have a plan



EMPORIUM MODEL ISSUES

“Is there an important difference between requiring each student to spend three hours per week in an open lab on an individual schedule and scheduling each student for specific times in a classroom or open lab?”

VERSIONS OF THE EMPORIUM

- **Fixed:** Mandatory lab hours are scheduled for student cohorts.
- **Flexible:** Mandatory lab hours are completed at the student's convenience.
- **Fixed/Flexible Blend:** Some mandatory lab hours are scheduled for student cohorts and others are completed at the student's convenience.

WHICH VERSION OF THE EMPORIUM MODEL?

- 49% Fixed (all meetings in lab)
- 11% Fixed with 1 class meeting outside lab
- 25% Flexible with 1 class meeting outside lab
- 6% Flexible with 1 class meeting inside lab
- 9% Not clear



EMPORIUM MODEL ISSUES

- **49%** **fixed version**
- 6%** **flexible version + one class meeting**
 in the lab/computer classroom

- **11%** **fixed version + a weekly group**
 meeting
- 25%** **flexible version + a weekly group**
 meeting

**Two key questions: why have a group meeting and
what do you intend to do in the group meeting?**

READINESS CRITERION #3

Assessment Plan

- Which assessment model do you think would be most appropriate for your redesign? Why?
- Have you identified each course's expected/intended learning outcomes?



MEASUREMENT METHODS

• Common Finals	31
• Common Exam Items	17
• Common Test Items	3
• Pre- and Post-Tests	8
• Common Rubrics	3
• Multiple Methods	11



More Is Not Better!

- **Differences in performance among student subpopulations**
- **Performance in follow-on courses**
- **Student attitude toward subject matter**
- **Student interest in pursuing further coursework in the discipline**

ASSESSMENT ISSUES

- **Pilot size minimum: at least 100 traditional and 100 redesign**
- **Don't worry too much about random assignment of students during pilot**
- **Common content items vs. common final exams – good and bad reasons**
- **Common rubric to score final exams**

PILOT ASSESSMENT PLAN					
Institution:					
Course Title:					
1. Which method of comparing learning outcomes do you intend to use? (Put an X next to all that apply)					
	<---Parallel Sections				
	# of traditional sections				
	# of students in each section				
	Total # of students				
	# of redesign sections				
	# of students in each section				
	Total # of students				
	<---Before and After				
	<---Timeframe for baseline data (e.g. fall 2006 semester, AY 2006-7, five-year average 2001-2006)				
	# of traditional sections				
	# of students in each section				
	Total # of students				
	# of redesign sections				
	# of students in each section				
	Total # of students				
2. Which method of obtaining data do you intend to use? (Put an X next to all that apply)					
	A - Comparisons of common final exams (internal and external)				
	B - Comparisons of common content items selected from exams				
	C - Comparisons of pre- and post-tests				
	D - Comparisons of student work using common rubrics				
Describe briefly:					

GRADES ARE NOT A SUFFICIENT MEASURE OF STUDENT LEARNING

- Lack of consistency
- Different coverage
- Different tests and exams
- Curving
- Inflation



Use only for course completion!

PILOT COURSE COMPLETION/RETENTION RESULTS

Institution:

Course Title:

Traditional Course

Timeframe:

	Number	Percentage
A		
B		
C		
D		
F		
W		
DR		
Other:		
Total		100%

Redesigned Course

Timeframe:

	Number	Percentage
A		
B		
C		
D		
F		
W		
DR		
Other:		
Total		100%

Your definition of successful completion (e.g., a C or better):

Your definition of retention (e.g., a D or better, enrolled in course to end, including F grades):

READINESS CRITERION #4

Cost Savings Plan

- Which cost savings strategy do you think would be most appropriate for your redesign? Why?
- How would you reallocate the resources saved?



COST REDUCTION STRATEGIES

- **Each instructor carries more students.
This can be done by**
 - increasing section size
 - increasing the number of sections that each instructor carries for the same workload credit.
- **Change the mix of personnel from more expensive to less expensive.**
- **Do both simultaneously.**

25 HAVE A CLEAR COST REDUCTION STRATEGY

- **Increase section size and decrease the number of sections (20)**
 - 3 project a 100% increase
 - 12 project a 60% - 70% increase
 - 5 project a 31% - 55% increase
- **Increase the number of students each faculty member carries (5)**



16 ARE NOT CLEAR

- Increase section size and decrease the number of sections, but no #s (9)
- General intentions (7)
 - “It is our goal to reduce costs by reconfiguring the faculty workload and class size structure.
 - “Additional students (and courses) can be accommodated without the addition of more developmental math faculty.”



12 DO NOT HAVE A COST REDUCTION STRATEGY

- Hope that retention will produce savings (1)
- Reallocating saved resources back to course (1)
- 25 to 30 section size problem (10)



COST ISSUES

- **Increasing section size from 25 to 30 - what's wrong with this strategy?**
 - Feels like filling room capacity
 - What was your actual enrollment vs. your cap?
- **If you want (or need) to keep sections small, follow the CSCC strategy of doubling (or increasing) the # of sections carried by each faculty member.**

COST REDUCTION EXAMPLE



Traditional

- Each instructor teaches 1 section
- Section size = 25
- Time spent = 200 hours

Redesign

- Time spent = 100 hours
- Options:
 - Each instructor = 2 sections of 25
 - Each instructor = 1 section of 50

COST SAVINGS SUMMARY FORM

A formatted spreadsheet that enables institutions to compare the cost of the traditional course with the cost of the redesigned course (types of sections, number of students enrolled and the kinds of personnel)



COST SAVINGS SUMMARY FORM		Institution:
		Course(s):
TRADITIONAL	REDESIGN	
Faculty	Faculty	
Average FT faculty salary and benefits	Average FT faculty salary and benefits	
# of sections taught in fall & spring	# of sections taught in fall & spring	
Cost of one FT faculty-taught section	Cost of one FT faculty-taught section	
Cost of one adjunct-taught section	Cost of one adjunct-taught section	
Enrollment	Enrollment	
Total enrollment	Total enrollment	
Enrollment per section	Enrollment per section	
Total # of sections	Total # of sections	
# of sections taught by FT faculty in fall & spring	# of sections taught by FT faculty in fall & spring	
# of sections taught by adjunct faculty in fall & spring	# of sections taught by adjunct faculty in fall & spring	
Cost	Cost	
Total cost of sections taught by FT faculty	Total cost of sections taught by FT faculty	
Total cost of sections taught by adjunct faculty	Total cost of sections taught by adjunct faculty	
Total cost of course coordination	Total cost of course coordination	
Total cost of other personnel (e.g., tutors, undergraduate tutors, lab professionals)	Total cost of other personnel (e.g., tutors, undergraduate tutors, lab professionals)	
TOTAL COST	TOTAL COST	
Cost-per-Student	Cost-per-Student	
	Total Savings	
	Percent reduction	

COST SAVINGS SUMMARY FORM		Institution: Example 1 Community College	
		Course(s): Basic Math, Elementary Algebra and Intermediate Algebra	
TRADITIONAL		REDESIGN	
Faculty		Faculty	
Average FT faculty salary and benefits	\$56,950	Average FT faculty salary and benefits	\$56,950
# of sections taught in fall & spring	10	# of sections taught in fall & spring	20
Cost of one FT faculty-taught section	\$5,695	Cost of one FT faculty-taught section	\$2,848
Cost of one adjunct-taught section	\$1,440	Cost of one adjunct-taught section	\$0
Enrollment		Enrollment	
Total enrollment	1,320	Total enrollment	1,386
Enrollment per section	24	Enrollment per section	18
Total # of sections	55	Total # of sections	77
# of sections taught by FT faculty in fall & spring	45	# of sections taught by FT faculty in fall & spring	77
# of sections taught by adjunct faculty in fall & spring	10	# of sections taught by adjunct faculty in fall & spring	0
Cost		Cost	
Total cost of sections taught by FT faculty	\$256,275	Total cost of sections taught by FT faculty	\$219,258
Total cost of sections taught by adjunct faculty	\$14,400	Total cost of sections taught by adjunct faculty	\$0
Total cost of course coordination	\$0	Total cost of course coordination	\$0
Total cost of other personnel (e.g., tutors, undergraduate tutors, lab professionals)	\$16,632	Total cost of other personnel (e.g., tutors, undergraduate tutors, lab professionals)	\$16,632
TOTAL COST	\$287,307	TOTAL COST	\$235,890
Cost-per-Student	\$218	Cost-per-Student	\$170
		Total Savings	\$51,418
		Percent reduction	18%

SCOPE OF EFFORT COMPARISON

A worksheet that
enables
institutions to
compare the
“before” activities
(the traditional
course) and the
“after” activities
(the redesigned
course)



FACULTY SCOPE OF EFFORT COMPARISON

Institution:			
Course:			
Traditional Course		FULL-TIME	ADJUNCT
		FACULTY	FACULTY
		# of Hours	# of Hours
Course Preparation			
Curriculum Design/Development			
Materials Acquisition			
Materials Development			
Faculty/Staff Devmt/Training			
Sub-Total		0	0
Course Delivery			
Diagnostics/Placement			
Presentation			
Interaction			
Progress monitoring			
Test proctoring			
Grading			
Sub-Total		0	0
TOTAL		0	0
Total contact hours			
Total out-of-class hours			
Total hours		0	0
# of weeks in semester/quarter			
Section size			

FACULTY SCOPE OF EFFORT COMPARISON

Institution:			
Course:			
Redesigned Course		FULL-TIME	ADJUNCT
		FACULTY	FACULTY
		# of Hours	# of Hours
Course Preparation			
Curriculum Design/Development			
Materials Acquisition			
Materials Development			
Faculty/Staff Devmt/Training			
Sub-Total		0	0
Course Delivery			
Diagnostics/Placement			
Presentation			
Interaction			
Progress monitoring			
Test proctoring			
Grading			
Sub-Total		0	0
TOTAL		0	0
Total contact hours			
Total out-of-class hours			
Total hours		0	0
# of weeks in semester/quarter			
Section size			

FACULTY LOAD EXAMPLE #1



Traditional

- Instructor load = 5 sections
- 25-student sections
- 125 students
- 15 hours in class
- 15 hours prep/grading
- Time spent = 30 hours per week

Redesign

- Instructor load = 10 sections
- 18-student sections
- 180 students
- 10 hours in class
- 20 hours in lab
- Time spent = 30 hours per week

FACULTY LOAD EXAMPLE #2

Traditional

- Instructor load = 5 sections
- 30-student sections
- 150 students
- 15 hours in class
- 15 hours prep/grading
- Time spent = 30 hours per week

Redesign

- Instructor load = 5 sections
- 40-student sections
- 200 students
- 10 hours in lab class
- 15 hours in open lab
- 5 hours prep/monitoring
- Time spent = 30 hours per week

READINESS CRITERION #5

Learning Materials

- Are the faculty able and willing to incorporate existing curricular materials in order to focus work on redesign issues rather than materials creation?



SOFTWARE ISSUES

- 41 have made a choice; 12 are making arrangements to choose
- Most choices based on existing use
 - “We have successfully used X in several math classes.” (not all faculty)
 - “The entire developmental education faculty has incorporated X as a supplemental resource into their courses.” (all but as a supplement)
 - “Faculty vary in their level of encouragement of students to use X to improve their writing skills.” (not required)

- **“We had a chance to spend time with software publishers at the Redesign Alliance conference and can see advantages to each.**
- **Our plan is to further develop our redesign model and then draw up a list of characteristics for software that will best be able to support it.**
- **A subset of the team will then work with the publishers and software to determine which will best fit our needs.**
- **We will also reach out to colleagues (including the Redesign Scholars as well as other schools in our state) to learn more about their experiences.”**

THINGS TO CONSIDER IN CHOOSING SOFTWARE

- **Must Haves**
(Without these, nothing else matters!)
 - Reliability
 - Good Content
 - User Friendly



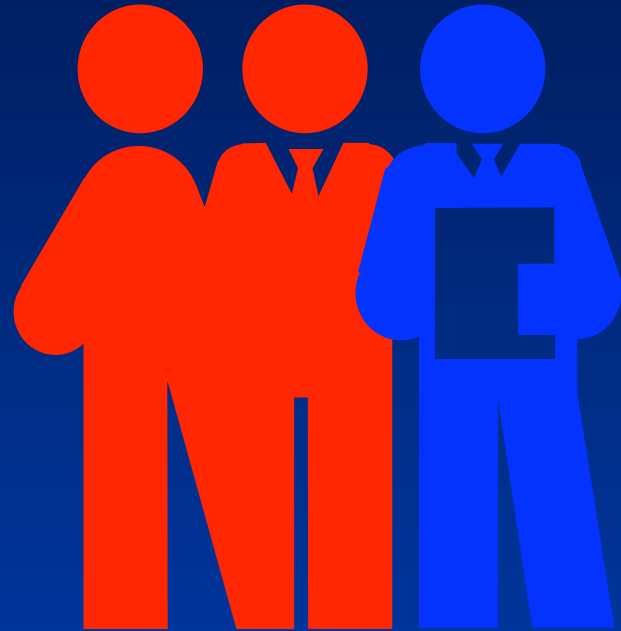
FEATURES TO CONSIDER

- Ease of installation
- Cost to student
- Cost to institution
- Quality and accessibility of tech support
- Willingness to provide training
- Browser restrictions
- Platform restrictions
- Communication with students capability
- Algorithmic exercises available
- Tutorial features
- Textbook included
- Videos
- Individual credit for multi-part questions
- Pooling for tests
- Sophistication of testing mechanism
- Coordinator/master course capability
- Gradebook features
- Ease of ability to export grades
- Feedback after submission
- Ability to print student work
- Multiple attempts allowed on assignments
- Settings for individual students
- ADA software compatibility
- IP restriction capability

READINESS CRITERION #6

Departmental Support

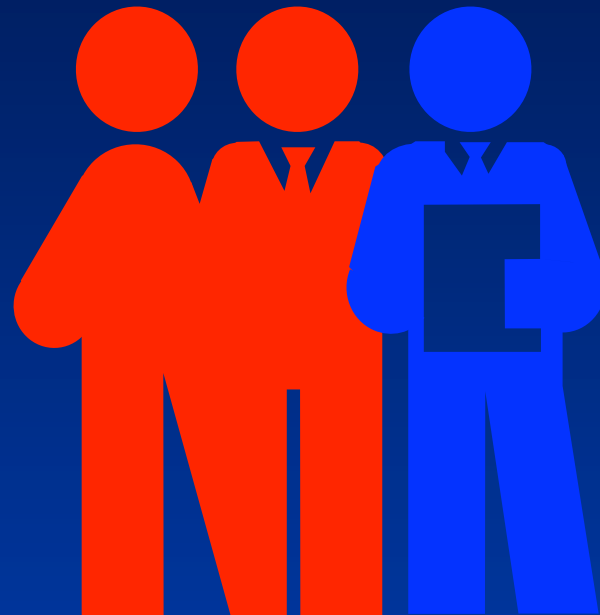
- Are decisions about curriculum in the department made collectively--in other words, beyond the individual faculty member level?
- Are the faculty ready to collaborate?



- **“We are using a team approach and trying to make all decisions by discussion, compromise and consensus. This, however, can be time-consuming, frustrating, stressful and unsatisfying.**
- **We have highly committed and talented faculty on the team, but we all have strong opinions about what is best for our students and our college.**
- **Management of change is very challenging. We need to think carefully about our leadership design and evolve to a more effective decision-making process as we go forward.**

WHY INSTITUTIONAL TEAMS?

- Faculty experts
- Administrators
- Technology professionals
- Assessment experts



FINAL PROPOSAL DUE 8/1/10

- Emporium model: how you will embody the Six Principles
- Lab component: how it will operate
- Learning materials: what you plan to use
- Cost reduction strategy: what you will do with the savings
- **Five critical implementation issues: how you will address**
- Timeline: pilot in spring 2011; full implementation in fall 2011
- Project budget: how the grant will support your redesign

FIVE CRITICAL IMPLEMENTATION ISSUES

- Prepare students (and their parents) and the campus for changes in the course.
- Train instructors, GTAs and undergraduate peer tutors.
- Ensure an adequate technological infrastructure to support the redesign as planned.
- **Achieve initial and ongoing faculty consensus about the redesign.**
- **Avoid backsliding by building ongoing institutional commitment to the redesign.**