How to Conduct a Large-Scale Course Redesign Initiative

UNDERSTANDING THE PROBLEM

Course design and instructor pedagogy have a critical effect on student learning, completion, and equity. Receiving a bad grade in an early assessment can demotivate students, further entrench a fixed-mindset[2], and activate stereotype threat[3] for underrepresented students. This increases their likelihood of stopping out.

A study conducted by a faculty member at UNC Chapel Hill found that in her lecture-heavy, introductory biology course 1 in 3 Black students and 1 in 7 Latinx students received a D or F compared to 1 in 14 white students[1]. These differences in course performance were significantly reduced when she incorporated more active learning techniques into her teaching practice. – pointing to the singular impact that instructor pedagogy has on student course outcomes. Moreover, individual course outcomes can also have long-term ramifications on student success by influencing major switching patterns and increasing time to degree.

Despite these student success concerns, it is difficult for institutions to incentivize faculty to change their pedagogical approach and scale course redesign support across campus.

STRATEGY

Enlist key stakeholders, including teaching and learning staff and interested faculty, to support rigorous, learning-focused course (re)design. Target the institution's most challenging curricular "bottlenecks" for course redesign, transitioning away from a traditional lecture-based model toward one that incorporates active learning strategies such as combining web-based content delivery with face-to-face interaction.

IMPLEMENTATION GUIDELINES

While institutions may be unable to redesign all courses at once, it is important to prioritize redesigning courses that will have the biggest effect on student outcomes. In order to develop impactful course redesign procedures institutions should:

- Redesign **entire courses** rather than individual sections
- Focus on general education, introductory, and/or prerequisite **gateway** courses
- Begin with courses with historically **high DFW (D/F/withdraw) rates**
- Begin with **high-enrollment** courses with seat capacity constraints
- Demonstrate support from **departmental faculty, chairs, and deans**
- Include a plan for **financial sustainability** and/or overall reduction in costs
- Describe how the course will use **technology** to reduce costs and improve outcomes

Elements of a Course Redesign

For more information about what learning-focused course redesigns entail, see "Four Strategies to Improve Course Completion Rates", on eab.com.

1) Beckie Supriano, "Traditional Teaching May Deepen Inequality. Can a Different Approach Fix It?", *The Chronicle of Higher Education,* May 06, 2018.
2) In a fixed mindset, people believe their basic qualities like intelligence and talent are fixed traits that cannot be improved.
3) Coined by Claude Steele and Joshua Aronson, stereotype threat refers to the risk of confirming negative stereotypes about an individual's racial, ethnic, gender, or cultural group.

Driving Course Redesign from the Center

Use Funding Proposal to Direct Resources to Mission-Aligned Redesign Projects

Case Study

Institution-wide course redesign initiatives often fail to achieve the desired student success results because of an imbalance between central administrative oversight and ground-up faculty support. The University of North Carolina at Charlotte balances both the interests of the institution and the curricular flexibility desired by faculty through a provost-level grant program for course design innovation. By targeting investments with an RFP process, UNC Charlotte avoids interfering with uninterested instructors, while ensuring that willing faculty have plentiful support and recognition throughout the redesign and assessment process.

UNC CHARLOTTE

Phase 1
Pre-Proposal and Vetting

Representative Activities:

- Faculty team interested in redesigning all sections of a course submit pre-proposal form
- Proposal includes[1] enrollment data, brief description of redesign, timeline and major milestones, and anticipated challenges and opportunities

Phase 2
Full Course Design

Representative Activities:

- Selected faculty teams submit full proposal for course redesign, including cost analysis, DFW rate analysis, and details about proposed redesign model

Phase 3
Executing and Launching

Representative Activities:

- Selected faculty teams work with Center for Teaching and Learning staff to implement course redesign throughout academic year

Course Redesign Grant Program By the Numbers

$5,000	$20,000	3-5
Initial funding amount given to selected faculty for summer planning costs	Remaining amount used to fund course redesign implementation throughout academic year	Total number of faculty teams awarded course redesign grants

Faculty interested in redesigning all sections of their course must first submit a pre-proposal form that includes a brief description of the intended redesign and account for any anticipated challenges. Based on this submission, three to five faculty teams are awarded a total of $25,000 in redesign funding per course, with preference given to large-enrollment introductory courses with high DFW rates. The winning teams then engage with UNC Charlotte's Center for Teaching and Learning (CTL) to create a full proposal for the provost's review, build and carry out the new course format, and assess their results during and after the term.

1) For more information about information included in the pre-proposal form, please see UNC Charlotte CTL website

Source: Large Course Redesign, University of North Carolina, Charlotte; Kropf et al. (2014), Large Course Redesign Project Report: POLS 1110 American Politics; Leilabady et al., (2011) Physics Large Course Redesign Project Report; Asala et al., (2011), Large Course Redesign Project Report: Principles of Chemistry.

A Comprehensive Gateway Course Transformation

CTL-Facilitated Redesign Process Reduces Barriers to Best Practice Adoption

Once courses are selected for revision, the CTL provides faculty with resources and expertise to guide them through best practices in blended pedagogy to maximize the likelihood of achieving their learning outcome goals. Without adequate guidance, revamped courses may prove to be a daunting and difficult experience for both faculty and students.

UNC CHARLOTTE

Phase 1 *Pre-Proposal and Vetting* → **Phase 2** *Full Course Design* → **Phase 3** *Executing and Launching*

CTL Staff Guide Faculty Through a Rigorous, Step-by-Step Course Redesign Process

- Assessment of course needs and goals
- Course material development and evaluation
- Course redesign planning
- Project management and facilitation
- Course budget planning
- Course redesign evaluation
- Faculty pedagogical and technological training
- Scholarship of teaching and learning

Instructional designers at the CTL facilitate the collaborative redesign process by connecting faculty members with relevant support staff such as instructional technologists and online learning specialists. CTL staff provide information and support throughout the redesign process including in key areas related to course budget planning, faculty pedagogical training, and redesign evaluation. With the daily responsibilities of most faculty members, the entire redesign project typically spans 3-4 semesters which includes an opportunity for faculty to assess their project, make updates, and plan to scale.

Source: Large Course Redesign, University of North Carolina, Charlotte; Kropf et al. (2014), Large Course Redesign Project Report: POLS 1110 American Politics; Leilabady et al., (2011) Physics Large Course Redesign Project Report; Asala et al., (2011), Large Course Redesign Project Report: Principles of Chemistry.

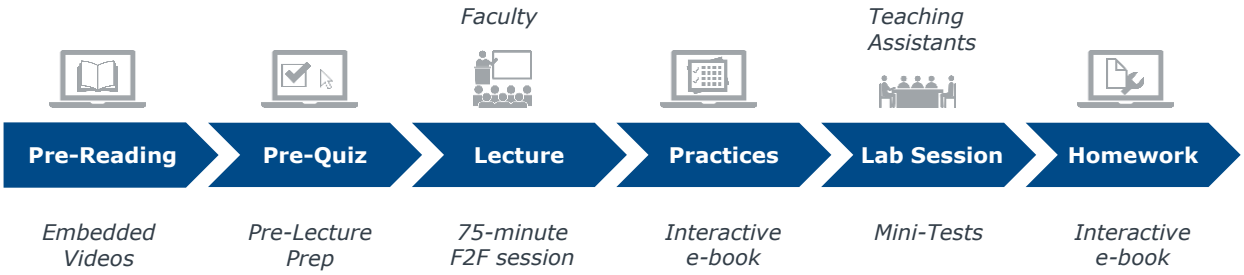
Return on Investment of Course Design Initiatives

Use of Technology, Changes to Instructional Model Improve Student Outcomes

UNC Charlotte's redesign initiatives have successfully improved student outcomes and reduced costs. For example, facing a combination of disappointing success rates and strained capacity, faculty in the physics department proposed redesigning ten sections of four introductory physics courses. In the initial format, each section involved two 75-minute lectures per week delivered by faculty. To incorporate more opportunities for active learning, faculty opted to replace these lecture-driven courses with a hybrid format that combined online and face-to-face teaching.

UNC CHARLOTTE

Physics Course Redesign Improves Student Outcomes While Reducing Instructional Costs



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Percentage point reduction in DFW rates

45%
Increase in enrollment cap

31%
Cost savings per student

By developing a blended model which included online content modules, pre- and post-class quizzes, and a teaching assistant-led problem-solving session, faculty reduced the DFW rate by 12 percentage points, expanded the enrollment cap by 45%, and achieve significant cost savings per student. This new model also reduced student anxiety associated with high-stakes midterm and final tests by focusing on periodic mini-examinations throughout the semester. Other disciplines have seen similar results. For example, UNC Charlotte found that by replacing one lecture session with a graduate student-led discussion and adding weekly low-stakes online activities in a redesigned political science course decreased DFW rates by 14 percentage points.

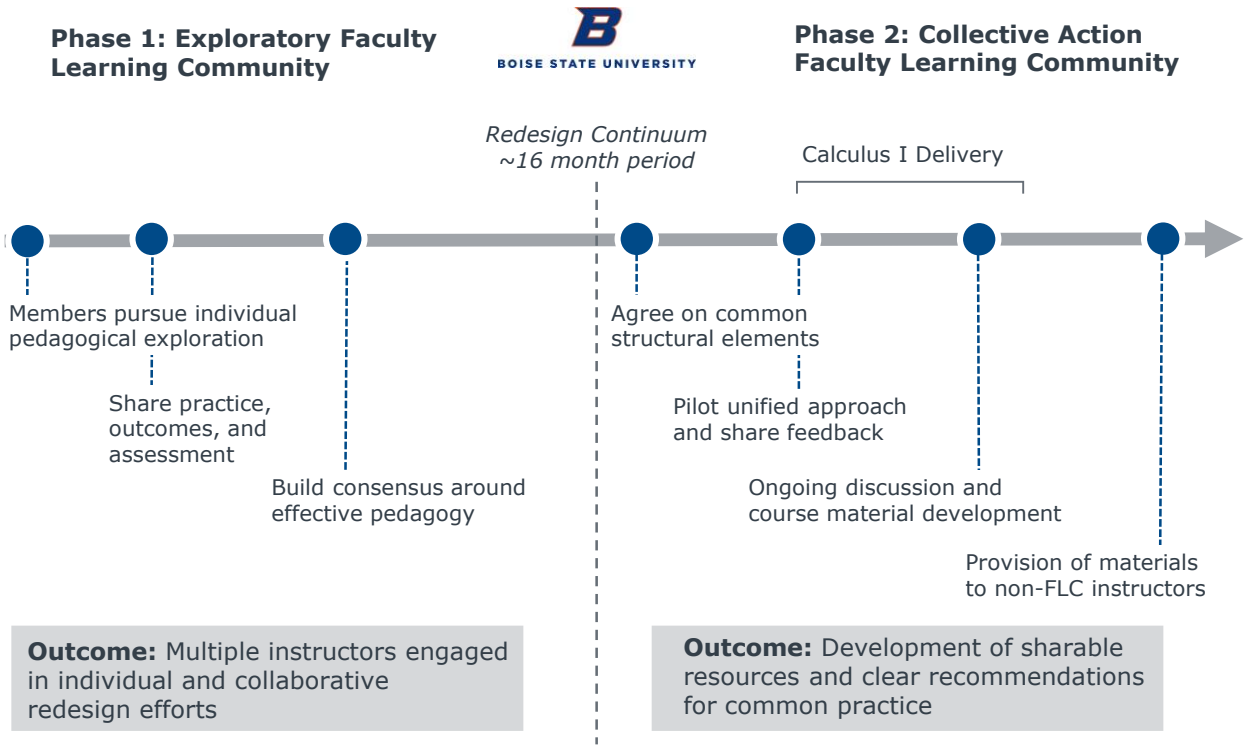
Source: Large Course Redesign, University of North Carolina, Charlotte; Kropf et al. (2014), Large Course Redesign Project Report: POLS 1110 American Politics; Leilabady et al., (2011) Physics Large Course Redesign Project Report; Asala et al., (2011), Large Course Redesign Project Report: Principles of Chemistry.

It Takes a Village

The Role of Faculty Learning Communities in Course Redesign

Case Study

Faculty ownership is essential to the success and longevity of any course redesign initiative. One of the best ways to engage and support faculty is through faculty learning communities (FLC). These cohorts support individual pedagogical exploration while encouraging collective learning through practice and outcomes sharing. Boise State's Center for Teaching and Learning invited mathematics faculty to participate in a course-based FLC, specifically to restructure Calculus I, a high-DFW critical course at BSU and on most campuses. The redesign effort took place in two phases over the course of about 16 months.



The first phase brought together an "Exploratory FLC," convening a group of interested calculus instructors to explore and experiment with redesign strategies at both the individual and institutional level. This created greater consensus around effective pedagogy across multiple instructors engaged in redesign efforts. The second phase entailed a "Collective Action FLC," the goal of which was to implement the redesign. Invitations to this FLC, which was convened in the fall term, were limited to instructors slated to teach calculus in the upcoming spring term. During the first half of this FLC, members set out to determine agreed upon reforms. The latter half of the FLC overlapped with another term of calculus I, during which instructors tested out their new materials. FLC meetings involved sharing experiences with the reforms as well as planning for future weeks. At the end of this process, the FLC members assembled materials for future calculus instructors.

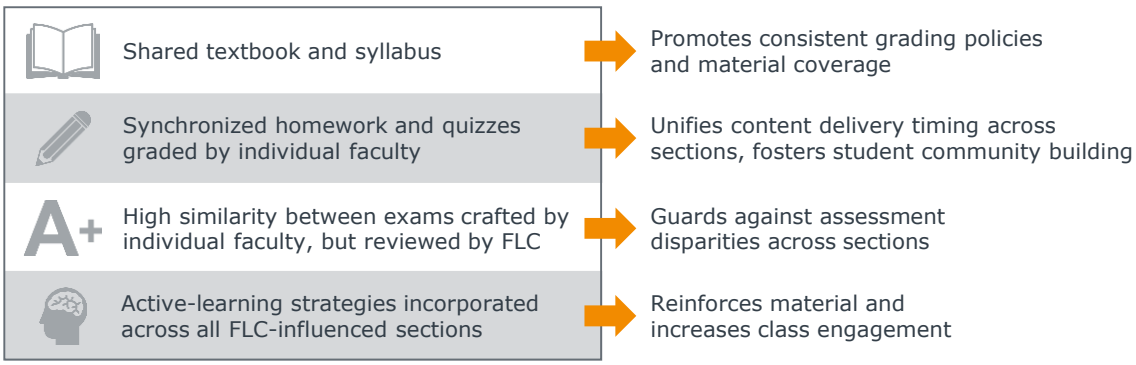
Source: Bullock D, et al., "Coherent Calculus Course Design: Creating Faculty Buy-in for Student Success," 122nd ASEE Annual Conference & Exposition, 2015; EAB interviews and analysis.

Beyond a Shared Textbook

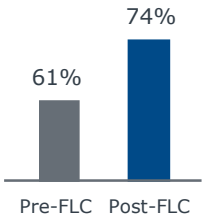
Faculty Collaboration Lowers Barriers to Adoption of Effective Pedagogy

Boise State's calculus faculty were able to channel both individual and collaborative efforts to deliver evidence-backed redesign to a multi-section course. The reform process began with a shared textbook and syllabus, which would have allowed individual instructors freedom in determining course assignments and grading. In the collaborative academic environment of an FLC, however, instructors soon agreed upon not just shared grading policies and weighting, but also synchronized assignment of identical homework and similar examination material. Though Boise State incurred a small cost in course releases to support FLCs, the long-term impact of calculus reform far outweighed the magnitude of this investment.

A Coherent Multi-section Course



Immediate & Visible Impact on Pass Rates



Non-FLC Instructors Quick to Adopt New Methods

100%

Of next semester Calculus I instructors adopted redesigned structure and material

High-Impact, Low Cost

Course Release Participation Incentive

This approach unified the timing of course content delivery as well as expectations for learning outcomes. Most of all, it resulted in FLC instructors adopting active learning strategies[1] in the classroom, one of the most powerful means to achieve better learning outcomes. An ancillary benefit to this synchronization was that it fostered community building for students, even across sections. The impact this had on students was visible immediately—in the pilot term, student pass rates increased to a weighted average of 74% across sections. Boise State was able to achieve sustained reform, as the structure and materials developed by the FLC were adopted by all calculus instructors, including non-FLC members, in the next term. There were no incentives or mandates to do so. Boise State continued to see the benefits, with calculus pass rates climbing to 75% in the subsequent term. Maintaining adoption rates of redesigned materials requires only an email every term, to make new instructors aware of their options.

1) For more information, see "Four Strategies to Improve Course Completion Rates", on eab.com.

Source: Bullock D, et al., "Coherent Calculus Course Design: Creating Faculty Buy-in for Student Success," 122nd ASEE Annual Conference & Exposition, 2015; EAB interviews and analysis.