EAB

The **Course Completion** Playbook

Analyses and Tools to Improve Student Outcomes in Critical Gateway Courses

Academic Affairs Forum

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Executive Summary

Student Success Initiatives Can No Longer Ignore What Happens Inside the Classroom

Student success research over the past decade has often focused on support systems outside the classroom such as new advising models, degree planning, financial aid, and living-learning communities.[1] What happens inside the classroom, of course, is critical for student success. Even non-academic risk factors often show up first as issues with attendance or mid-term grades.

While many institutions have made significant progress through non-instructional approaches to student success, a growing body of research has looked at how changes to the classroom experience can measurably improve student learning, retention, and graduation rates. This "evidence-based pedagogy" is now solidly grounded in both science and practice, but its use has been slow to spread. (See appendix for relevant reports and articles).

Course Completion Rates Are an Important Indicator for Student Success

One effective way to identify opportunities for improvement is to analyze course completion rates. The completion rate is simply the percentage of students enrolled in a course at the census date who receive credit for it. The inverse is often referred to as the DFW rate, or the percentage of students who receive a failing grade (D/F) or withdraw from the course (W). Courses with very high DFW rates or large numbers of students who do not complete then become priorities for increased investment, support, and redesign.

Institutional DFW rates typically range from 15%-30%, meaning that hundreds or thousands of students are currently sitting in (and paying for) a class for which they will not receive credit. Failing (or even withdrawing from) a class can lead to a number of negative outcomes for a student:

- Less likely to be retained
- Longer time to degree (and therefore higher cost of degree)
- Potential to lose financial aid if course load drops below full time status
- Potential to lose scholarship if GPA drops below minimum

An analysis of data from 10,000 first-time college students at the University of Wisconsin at Madison, for example, found that six DFW credits led, on average, to an extra four months of time to completion.[2] DFWs also increase institutional costs and reduce instructional capacity as students are forced to repeat courses or take additional courses to meet degree requirements.

1) See, for example, EAB's Hardwiring Student Success, Guiding Student Choice to Promote Persistence, A Student-Centered Approach to Advising, Defining the Faculty Role in Student Success, Promoting Timely Degree Completion.
2) University of Wisconsin-Madison, Predictors of Time-to-Degree for Recent UW-Madison Undergraduates, December 2014.

Executive Summary (cont.)

Some Faculty Remain Skeptical that Improving Pedagogy Is Either Necessary or Possible

While high DFW rates (30%-40%) are typical for many gateway courses, some faculty remain skeptical of attempts to improve course completion rates. Common concerns include:

- Belief that high course failure rates are due entirely to poorly prepared students, increasing class sizes, and greater use of adjunct instructors (i.e., factors outside of faculty control)
- Concern that calls to improve course completion rates are actually implicit demands to reduce the rigor of instruction
- Perception that efforts to improve course completion rates represent administrative interference in teaching
- Fear that course redesign is just a way to enlarge class sizes and increase faculty workload
- Use of gateway courses to screen out students and limit entrance to oversubscribed majors
- Frustration that giving more resources to instructors with low completion rates is "rewarding bad teachers"

Recognizing and addressing faculty concerns is essential to making progress. Pedagogical conversations that focus on blaming weak students (or weak instructors) for poor outcomes are rarely productive.

Hundreds of Successful Course Redesigns Have Demonstrated That Completion Rates Can Be Improved Without Sacrificing Rigor

Research indicates that there are a number of effective ways to increase course completion rates without reducing rigor. NCAT, SCALE-UP, Gateways to Completion, and other course redesign initiatives have demonstrated through hundreds of implementations that changes in pedagogy can measurably improve completion rates and student learning outcomes even at larger class sizes. (See appendix for examples.) In many cases, institutions have also succeeded in reducing instructional costs while improving outcomes, though that is not the focus of this white paper. Central to all of these approaches is a shift in teaching philosophy from "screening out" underqualified students to identifying the barriers that students face and providing additional support to enable them to reach high academic standards.

Improving Gateway Course Completion Rates More Than Just a Matter of Pedagogy

Research has shown that redesigning the pedagogical model for gateway courses can measurably improve student success, but complete course redesigns can be expensive, time-consuming, and politically challenging. Simply adding supplemental instruction or early-low stakes assessments, for example, can also have a major positive impact but with significantly less effort. The approaches described in this brief require the engagement of instructors, but they do not depend on having large numbers of faculty fundamentally rethinking their teaching philosophy.

This brief describes how to address course completion rates and profiles a range of tactics to reduce DFW rates without reducing academic rigor.

Executive Summary (cont.)

Four Steps to Addressing Course Completion Rates

1. Size the Opportunity

While every institution recognizes that some students do not complete some courses, many are surprised when they actually analyze the data. Quantifying DFW rates at the institutional, college, department, and course level can help administrators and faculty understand just how many credits are being lost and how many students are being negatively impacted.

It is important to look at both the DFW rate (the percentage of students who are not completing a course) and the absolute number of credits lost due to DFWs. Often a very large course with a relatively low DFW rate will impact more students than a very small course with a high DFW rate.

Sharing these data widely across campus can stimulate productive conversations about how to understand the DFW challenge and how to respond to it.

2. Identify Root Causes

While counting incomplete credits is relatively straightforward, determining why students are not passing courses is often significantly more difficult. Common findings include:

- While lack of academic preparation certainly contributes to the issue, high school GPA and standardized test scores are often poor predictors of first semester course performance.[1] Even highly selective institutions face high DFW rates in certain programs and courses.[2]
- Students often struggle in their first year for non-academic reasons (financial, personal, emotional, etc.). While individual instructors may not be able to address these issues in class, these challenges often manifest first as absences or failing grades. Instructors can identify early warning signs and pass them to advising and counseling staff.
- Institutional data typically shows that instructor variation (i.e., large variations in DFW ranges among different instructors teaching sections of the same course) is often a major driver of higher DFW rates. Variability in instructor DFW rates is often due not to differences in student preparation but rather differences in grading philosophy or a lack of standardization of assessments across multiple sections of a single course
- Some institutions have found that certain courses have higher DFW rates for students with different socioeconomic or demographic characteristics (e.g. first generation, underrepresented minority). Identifying these disparities is an important first step in understanding which pedagogical approaches are more or less effective for different types of students.[3]

1) IUPUI, "Promoting First-Year Success," 2010.
2) UCLA, "Enhancing Student Success and Building Inclusive Classrooms at UCLA" December 2015.
3) Ibid.

Executive Summary (cont.)

3. Prioritize Resources

It is not possible (or necessary) to redesign the majority of courses taught on any campus. Given limited time and resources, it is critical to focus on those courses that have the largest impact on student success and where pedagogical innovation has the most support.

- Look at courses with high DFW rates and high absolute numbers of lost credit hours
- Consider courses with high variability in DFW rates by instructor or by student group
- Focus on high-enrollment courses, especially those with capacity constraints
- Emphasize gateway courses that are major requirements or critical prerequisites
- Start with courses where the instructors are excited by the opportunity to improve student outcomes
- Prioritize courses where the chair and dean are also supportive

4. Engage Faculty

Ultimately, faculty are responsible for what happens in the classroom, and no changes to pedagogy can or should be made without their leadership. It is important to recognize, however, that faculty face many barriers to adopting new approaches in the classroom.[1]

Barrier to Faculty Engagement	Potential Solution
Unaware of the impact of high DFW rate on students/department/institution	Share data on DFW rates at the department and course level regularly
Unfamiliar with new pedagogical approaches	Workshops run by Teaching and Learning Center, faculty learning communities, support for scholarship of pedagogy
Skeptical of new pedagogical approaches	Visits and demonstrations from nationally recognized faculty who have successfully implemented new teaching approaches
Lack time to redesign course/ learn new approaches	Course releases, summer funding, sabbaticals and other support for pedagogical innovation
Concerned that extra effort on teaching will not be rewarded in tenure or promotion	Institutional awards and recognition for teaching excellence, differentiated faculty roles (that emphasize teaching over research)
Worried that new pedagogical approach or technology will fail	Opportunities to experiment with new approaches in low stakes environments
Hesitant that students may respond negatively to new approaches, lowering student evaluation scores	Robust approach to measuring learning outcomes before and after new pedagogical innovations

It is critical to recognize that this work needs to be done by the faculty and that faculty require time and resources to engage in the challenging but productive work of course improvement. While all institutions have a handful of passionate faculty innovators, relying on the intense devotion of a handful of instructors will not be sufficient to make a measurable impact across multiple sections, multiple courses, and multiple departments. A coordinated effort to provide resources, support, time, and incentives is essential.

1) EAB, Scaling Learning Innovations.

Course Completion Diagnostic

Assessment

Early and Frequent Low-Stakes Assessment

Analysis to Run

How predictive of final gateway course grades are multiple absences and pre-midterm assessments?

Assessing Current Practice	Yes	No
Are students assessed multiple times outside of the midterm and the final?	☐	☐
Do faculty provide feedback and information on relevant campus services based on those assessments?	☐	☐
Do on-going assessments make up a small percentage of a student's overall grade?	☐	☐
Do on-going assessments use various testing approaches (e.g., multiple choice, short essay, online or computer-based mini-tests, etc.)?	☐	☐

If you answered no to any of the above, see Frequent Low-Stakes Assessments on p. 22

Standardized Assessment

Analysis to Run

Are DFW rates generally consistent among instructors teaching the same course?

Assessing Current Practice	Yes	No
Do faculty teaching sections of the same course jointly determine the expected learning objectives for the course?	☐	☐
Do faculty teaching sections of the same course use a shared approach to assessments?	☐	☐
Do faculty teaching sections of the same course agree upon a common set of course materials like textbooks and readings?	☐	☐
Do faculty agree upon a uniform approach to grading homework, projects, and exams?	☐	☐

If you answered no to any of the above, see Standardized Assessment on p. 25

Course Completion Diagnostic (cont.)

Instruction

Active Learning

Analysis to Run

Do student surveys (NSSE, course evaluations) indicate high levels of active learning across all departments?

Assessing Current Practice	Yes	No
Do students report being engaged in class?	☐	☐
Are small scale active and blended learning pilots and initiatives communicated across the faculty?	☐	☐
Do faculty receive training and resources on a variety of pedagogies	☐	☐

If you answered no to any of the above, see Active Learning on p. 28

Supplemental Instruction

Analysis to Run

Do students who attend additional tutoring or supplemental instruction show measurable improvement?

Assessing Current Practice	Yes	No
Do courses with high failure and withdraw rates direct students to corresponding supplemental instruction sections?	☐	☐
Do faculty discuss and illustrate to students how supplemental instruction can increase their chances of success in the course?	☐	☐
Do supplemental instruction sections apply interactive learning opportunities for students?	☐	☐

If you answered no to any of the above, see Supplemental Instruction on p. 31

Course Completion Diagnostic (cont.)

Course Level Advising

Course Behavior Alerts

Analysis to Run

Do students with strong high school GPA and SAT/ACT scores still struggle with college academic performance? Are there other observable course behaviors that predict high risk?

Assessing Current Practice	Yes	No
Are behaviors indicating student risk centrally tracked?	☐	☐
Do faculty have a system through which they can easily report troubling student behavior (e.g., absences, low-grades, falling asleep in class, etc.)?	☐	☐
Are specific interventions in place to address troubling student behavior?	☐	☐
Are there mechanisms in place to ensure students are connected with the necessary support services?	☐	☐

If you answered no to any of the above, see Course Behavior Alerts on p. 34

Automated Withdrawal Advising

Analysis to Run

How many students are withdrawing from courses with passing grades?

Assessing Current Practice	Yes	No
Are student requests to withdraw from courses centrally tracked?	☐	☐
Are students required to give a reason for withdrawing?	☐	☐
Are students advised of the potential consequences of withdrawing tailored to their individual situations?	☐	☐

If you answered no to any of the above, see Automated Withdrawal Advising on p. 37

Course Completion Diagnostic (cont.)

Pre- and Post-Course Support

Growth Mindset Priming

Analysis to Run

Are first generation or underrepresented minority students passing courses at the same rate as other students?

Assessing Current Practice	Yes	No
Do students complete activities to build confidence and engagement early on?	☐	☐
Are new students provided with the testimonies and advice on acclimation from current students?	☐	☐

If you answered no to any of the above, see Growth Mindset Priming on p. 40

Intensive Early Start Cohorts

Analysis to Run

Do academically at-risk students earn credits at a slower rate than other students in their first semester?

Assessing Current Practice	Yes	No
Are borderline admitted students required to participate in some kind of bridge program?	☐	☐
Can students participating in bridge programs gain credits towards their degree?	☐	☐
Can students apply financial aid to cover the costs of summer bridge programs in which they participate?	☐	☐

If you answered no to any of the above, see Intensive Early Start Cohorts on p. 43

Course Completion Diagnostic (cont.)

Pre- and Post-course Support

Accelerated Catch-Up Terms

Analysis to Run

Do students who drop a class take longer to graduate?

Assessing Current Practice	**Yes**	**No**
Are students who drop or withdraw from a course partway through the term given an alternative option to fill in that coursework?	☐	☐
Are accelerated format courses available?	☐	☐
Are students who drop below full-time losing their financial aid status due to course withdrawals?	☐	☐

If you answered no to any of the above, see Accelerated Catch-Up Terms on p. 46

Four Steps to Addressing Course Completion Rates

PART I

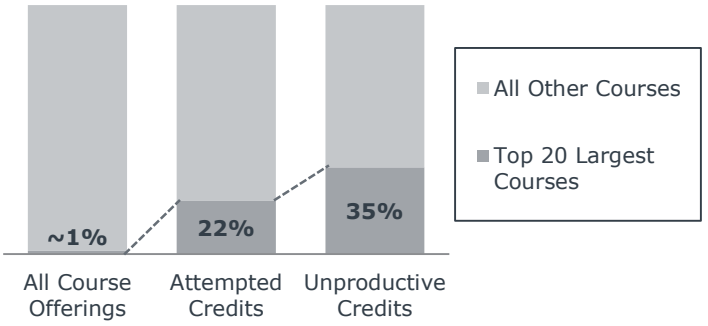
Size the Opportunity

Every Institution Leaking Credits from Same Intro Courses

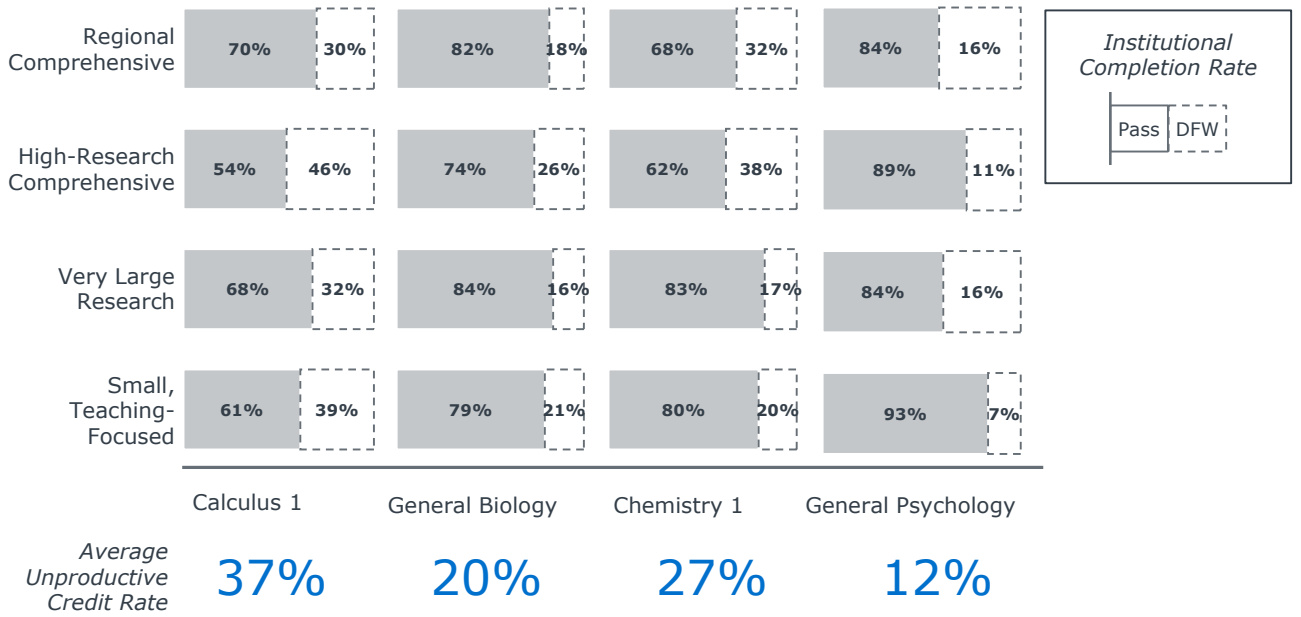
Each year a significant number of credits are lost due to failing grades and student withdrawals from courses (DFWs). Typically 15%-30% of attempted credits are unsuccessfully completed due to DFWs with some courses reaching DFW rates as high as 60%-80%.

However, course completion rates can be misleading since just a few students failing to complete in low enrollment courses can dramatically impact rates. Institutions should look at courses that have the greatest impact such as high enrollment courses, general education courses, and pre-requisites to majors.

A Handful of Large Courses Generate Large Share of Unproductive Credits[1]



Course Completion Rates in Gateway Courses at Seven Universities[2]



Lost credits stem most frequently from lower division courses. EAB data finds that while high-DFW courses vary from institution to institution, there is a common set of six courses that tend to have the highest number of uncompleted credits: intro to chemistry, intro to psychology, intro to biology, college algebra, freshman English, and intro to political science.

1) EAB and Gates Foundation data and analysis..
2) Academic Performance Solutions data and analysis..

Source: Fall 2014, Seven Research, Master's, and Baccalaureate Institutions; EAB interviews and analysis.

Identify Root Causes

Drivers of High DFW Rates

Lack of academic preparation a contributor, but not always a predictor

Lack of academic preparation frequently prevents students from succeeding in courses. While low high school GPAs and/or low SAT or ACT scores can help identify those students most at risk, students without such markers may also be at risk. Students with strong high school GPAs who attended academically weak institutions or did not take rigorous courses are often still missing critical study skills.

Non-academic barriers often manifest first as academic issues

There are a number of barriers that can prevent students from completing a course. The student may have had multiple absences or several missed assignments preventing them from mastering enough of the material to pass. Particularly important for online courses, students may never have logged into the LMS. Such lack of engagement prevents students from gaining access to critical course information, assignments, and support mechanisms. Finally, a student may be disadvantaged due to demographic risk factors like first generation status, low income, or status as an underrepresented minority.

Large class sizes less important than pedagogical approach

Analyses by both the University of Kentucky and EAB have found that class size has little effect on DFW rates. However, a UCLA analysis found that while large classes overall were not a problem, models comparing student groups identified section size as associated with higher no-pass rates. More importantly, when they analyzed the factors associated with the achievement gap between URM and non-URM students and Pell Award recipients and non-recipients, they found that course size was a significant factor in disparity ratios. More likely, the negative impact is due to problematic pedagogy applied to large course sections rather than the size of the sections themselves.

Students often withdraw for the wrong reasons without understanding consequences

While there are good reasons to withdraw from a course, some students withdraw because they are not earning the grade they want. While EAB's Student Success Collaborative identified that course repeats by those receiving a C or below can be a marker for success, students with high marks that choose to withdraw and retake a course risk slowing their time to degree unnecessarily.

Other poor reasons for withdraw include: dislike of the instructor, unhappy with the timing of the course (unless it conflicts with work), and losing interest in the material.

Source: EAB interviews and analysis.

Identify Root Causes (cont.)

Grading philosophy affects student performance

A UCLA analysis found that while some of their faculty grade based on concept mastery, others grade based on class distribution (also known as grading on a curve or norm-referenced grading). Grading on a curve, their analysis found, "is associated with the greatest disparities across groups in course performance."[1]

Some pedagogical styles not as effective for certain student groups

Certain pedagogical approaches serve to reinforce unconscious biases and stereotype threat, serving to hurt not only students who are truly underprepared and/or are in need of greater support, but also those underrepresented students who are well-prepared. UCLA found that the success of students that come from racial, ethnic, and gender minorities or are from lower socio-economic backgrounds "is undermined by stereotype threat and the unconscious biases of peers and instructors who inadvertently affirm their undeserved exclusion from academically successful tiers of the learning community."[2]

Lack of support for improved pedagogy

Some faculty members argue that low (and possibly declining) levels of academic preparation of students are to blame for high failure rates. Certainly, this may explain part of the problem. But the fact that even highly selective universities see high failure rates in certain courses indicates that the issue goes beyond student academic preparation. And the wide variation in fail rates by instructor for some courses demonstrates that in some cases, improvements in pedagogy can make a significant difference.

However such changes are challenging due to insufficient incentives for faculty to improve their pedagogy. Faculty members (and new graduate teaching assistants) receive minimal training and support for pedagogical innovation and limited feedback on teaching effectiveness (other than student course evaluations). Further, adjuncts (as well as tenured faculty) often lack the time and support needed to overhaul their teaching methods.

1) UCLA, "Enhancing Student Success and Building Inclusive Classrooms at UCLA" December 2015.
2) Ibid.

Source: EAB interviews and analysis.

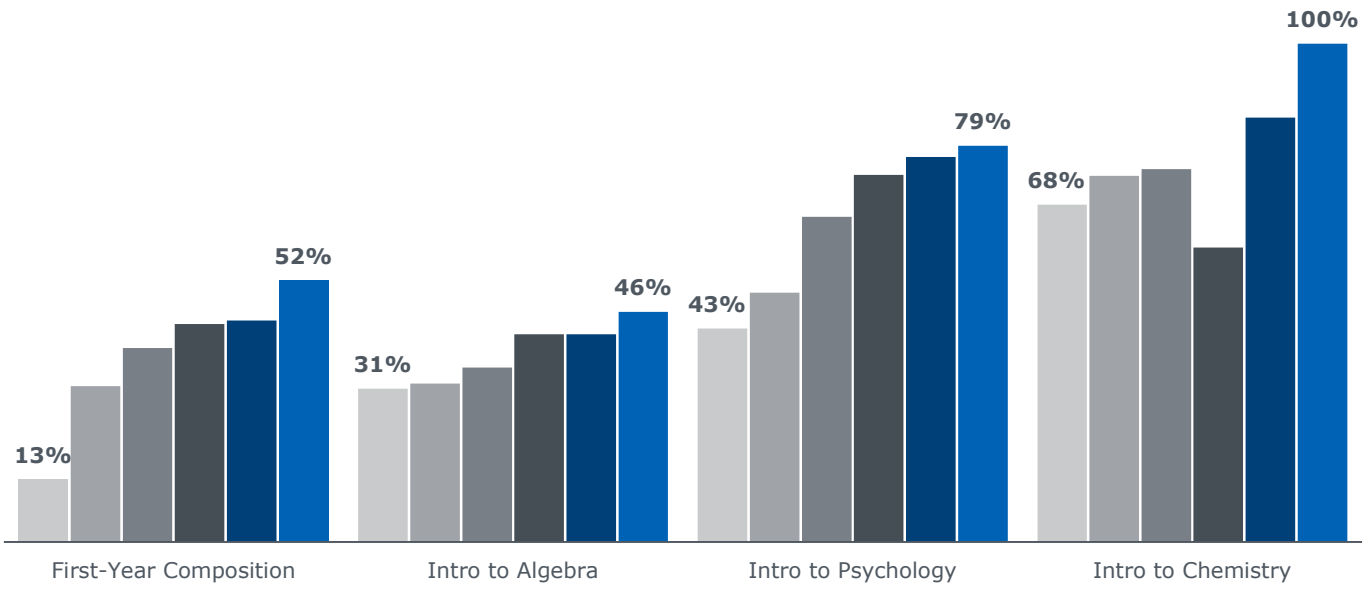
Identify Root Causes (cont.)

Failure Rates Vary Drastically, Even Within a Single Course

While student academic preparation is clearly an important factor in explaining overall DFW rates, data on course completion rates by instructor show significant variation even across students with similar qualifications in different sections of the same course. Data below from one public master's university shows that a student's choice (or assignment) of instructor plays a significant role in his or her success.

Instructors Often a Major Source of Variability

Completion Rates for Sections of Same Course at More Selective, Public Research University[1]



While many administrators and faculty suspect that course size and student mix (high numbers of URM and underprepared students) are the main drivers of DFWs, high variation by instructor indicates that it is critical for institutions to address these discrepancies and ensure equal support across course sections. Actions taken to address high-DFW-rate courses must involve all faculty instructors, not just those few who are most willing to experiment with delivery modes and innovative pedagogy in the classroom.

As one report noted, "Pass rates varied widely from instructor to instructor, creating a strong sense in the minds of students and faculty that 'Who you took' mattered more than 'What you learned.'"[2]

In some cases, variation in pass rates by section may be the result of timing rather than instructor. Though calendars and space may necessitate it, courses scheduled at unpopular times may see higher DFW rates due to higher rates of student absence or clustering of students who are underprepared. Underprepared students are frequently late to register, forcing them into last pick course options and times. At the same time, students who work (especially off-campus) may find themselves limited to unwanted or conflicting course times and course options.

1) Academic Performance Solutions data and analysis.
2) Bullock D, et al "Coherent Calculus Course Design: Creating Faculty Buy-In for Student Success," 122nd ASEE Annual Conference & Exposition 2015

Source: EAB interviews and analysis.

Prioritize Resources

Identify Courses Where Improvements Would Have the Greatest Impact

Prioritize investments in redesign based on a specific set of criteria. Well-intentioned blended learning initiatives often fail to achieve the desired course conversion or student success results because of an imbalance between central administrative oversight and ground-up faculty support. One method of balancing both the interests of the institution and the curricular flexibility desired by faculty is to administer a provost-level grant program for course design innovation.

By using targeted investments through an RFP process, the administration at the **University of North Carolina at Charlotte** ensures that willing faculty have plentiful support and recognition throughout the redesign and assessment process without trying to coerce faculty who are resistant.

Course Redesign Prioritization Criteria

Redesign grant programs should prioritize proposals that meet the following criteria:

Redesigns **entire courses** within a department, rather than individual sections

Demonstrates support from departmental **faculty, chairs, and deans**

Targets general education, introductory, and/or prerequisite **gateway** courses

Includes a plan for **financial sustainability** and/or an overall reduction in costs

Targets courses with historically **high DFW (D/F/withdraw) rates**

Describes how the course will use **technology** to reduce costs and improve outcomes

Targets **high-enrollment** courses with seat capacity constraints

Preserves **academic rigor and course content** while adapting delivery methods

For more information and resources, see the National Center for Academic Transformation's online repository at **thencat.org**

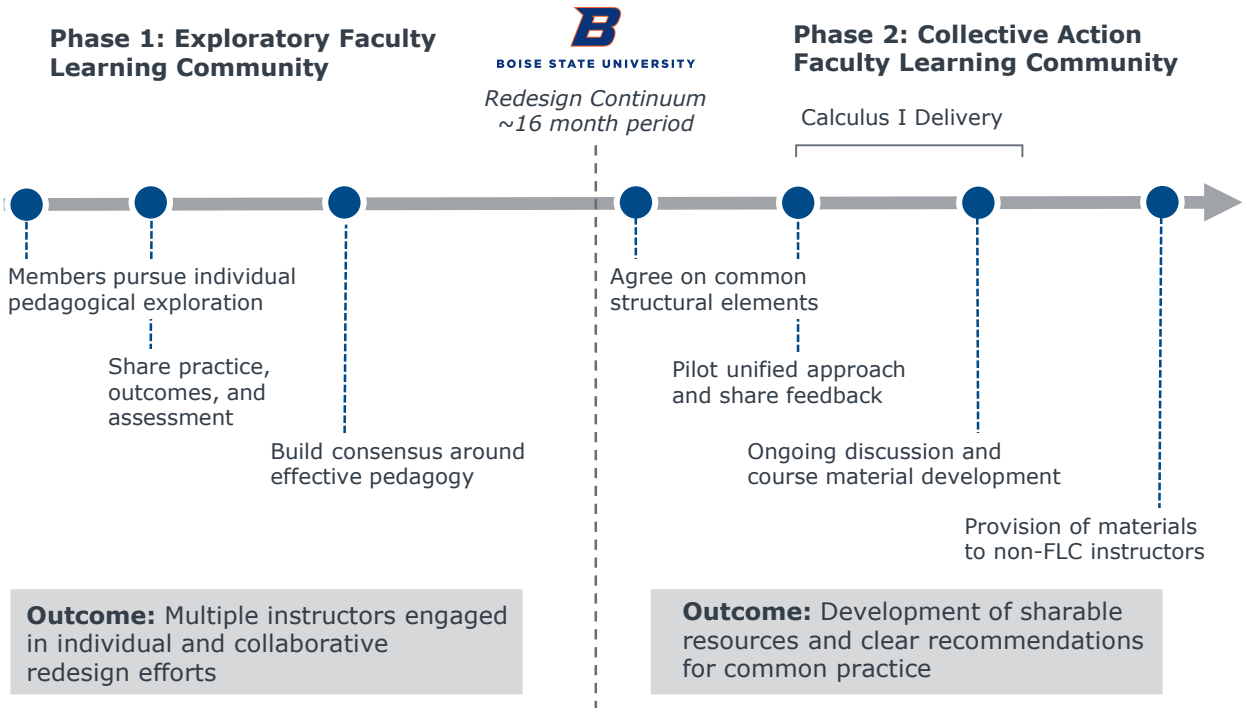
Source: EAB interviews and analysis.

Engage Faculty

The Role of Faculty Learning Communities in Course Redesign

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) which support individual pedagogical exploration while encouraging collective learning through practice and outcomes sharing.

For example, Boise State's Center for Teaching and Learning invited mathematics faculty to participate in a course-based FLC, specifically to restructure Calculus I. The redesign effort, depicted below, took place in two phases over the course of about 16 months (or two academic years). The first phase brought together an "Exploratory FLC," convening calculus instructors to explore and experiment with redesign strategies at both the individual and institutional level.



The outcome from the first phase was greater consensus around effective pedagogy—and most importantly, across multiple instructors engaged in redesign efforts.

The second phase entailed a "Collective Action FLC," the goal of which was to actually implement agreed-upon reforms in the classroom. 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 a term of calculus, during which instructors would test 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.

Nine Tactics for Improving Course Completion Rates

PART II

Early and Frequent Low-Stakes Assessment

UNDERSTANDING THE PROBLEM

Students are often **unable to measure their progress until the first summative assessment, typically a midterm exam (if not the final exam)**. But, by the midterm, it is too late for students to master the material or withdraw from most courses without receiving a W grade. And while students can get help after the mid-term, they may not be able to catch-up.

STRATEGY

Use frequent, low-stakes learning assessments so students can check their progress early and often. Such formative assessments enable students to seek help earlier if they are struggling. They also enable instructors to identify and intervene with students who are off-track. These assessments can take a wide range of forms, from simple conversations in class, to written quizzes, to fully adaptive online learning tools.

IMPLEMENTATION GUIDELINES

Provide students with targeted feedback

- Assessments should not only give students a sense of how they are doing in a course, but also quickly identify where they may have gaps in mastery and need to spend more time
- Assessments should also provide the opportunity to identify and target tutoring on any core concepts a student is missing

Connect students with resources

- Instructors should connect students with additional resources and services to help them fill in any gaps in their mastery
- Some institutions link students to:
  - Online videos
  - Supplemental readings
  - Supplemental activities

Close the loop

- Instructors should be tracking and following up on any gaps that students have
- This might be done by incorporating questions to test improvement in concept mastery later on or requiring students to go through modules that track and adapt to their level of mastery

Advanced: *Link homework and materials for upcoming lessons to short activities and assessments that must be properly completed to unlock course assignments. These adaptive release modules can be integrated into the LMS for both online and face-to-face courses to ensure students master foundational concepts before moving on to new material.* *See p. 23.*

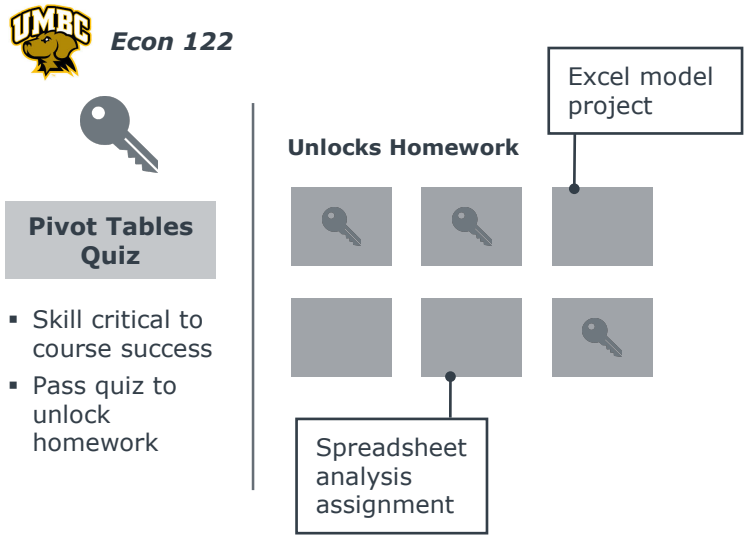
Source: EAB interviews and analysis.

Early and Frequent Low-Stakes Assessment (cont.)

Case Study

At the University of Maryland, Baltimore County (UMBC) a feature called adaptive release ensures that students address learning gaps as they progress in their coursework. Adaptive release is a simple, built-in Blackboard setting that requires students to pass quizzes about fundamental concepts before they can "unlock" access to their homework. For example, in Econ 122 at UMBC, students need to understand pivot tables in order to do well in the course and must pass a short quiz about pivot tables to access homework and spreadsheet analysis projects.

"Adaptive Release" Ensures Mastery of Foundational Skills



Early results show lasting effects

- ✓ 20% higher scores on final
- ✓ Higher than average GPAs in next course, Econ 301—3.37 vs. 2.76

Push-button implementation

- ✓ Standard Blackboard feature
- ✓ Only a few clicks to activate
- ✓ Less than five hours course development time

UMBC has found that students in course sections using adaptive release perform better than students in sections without it. Econ 122 students using adaptive release not only scored higher on the class final, but their improved performance persisted into the next course, Econ 301, where students who had used adaptive release in their prior course earned above-average course GPAs. Implementing adaptive release, a standard built-in feature of Blackboard, takes only a few extra hours of course development time and no technological expertise.

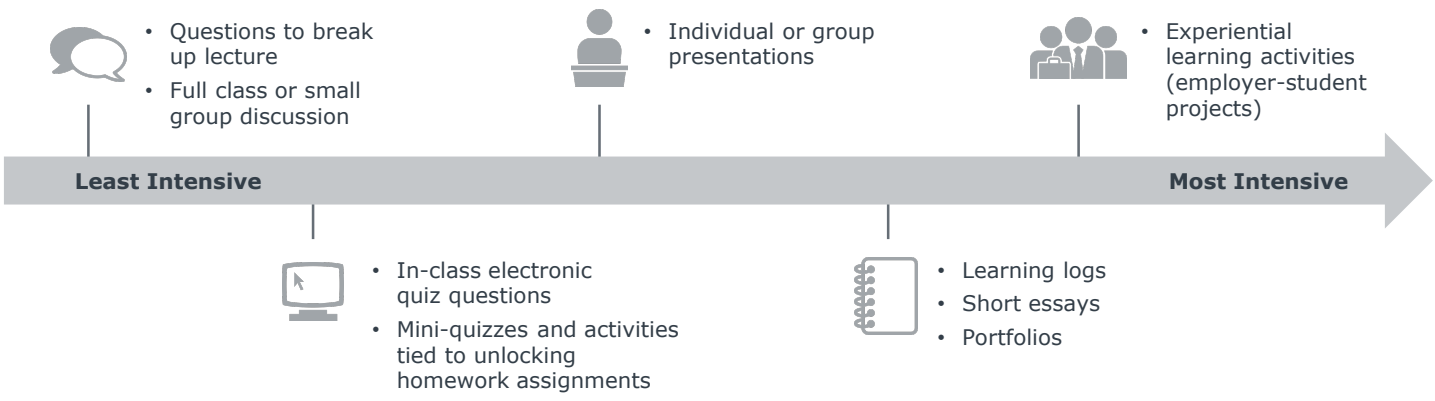
Source: Fritz J, "Using Analytics at UMBC: Encouraging Student Responsibility and Identifying Effective Course Designs," EDUCAUSE Center for Applied Research, April 30, 2013; EAB interviews and analysis.

Early and Frequent Low-Stakes Assessment (cont.)

The Do's and Don'ts of Low-Stakes, Incremental Assessment

- ☐ Align low-stakes assessments with teaching of foundational concepts
  This helps prevent students from developing gaps in concepts they need to master to succeed as the course progresses and in future courses
- ☐ Provide low-stakes assessments prior to key institutional dates (add/drop dates, start dates for accelerated variation on a course, etc.)
  Particularly for first-year exploratory students, this ensures students can see if a particular course (or pathway) may be the right choice while still giving them the opportunity to change courses if need be
- ☐ Use low-stakes assessments to teach students good studying habits
  Students often use ineffective studying techniques like simply rereading notes—instead set a group against a problem to demonstrate that they can collaborate outside of class to reinforce their learning
- ☐ Use assessments as an opportunity to put knowledge into larger contexts
  Require students to draw on concepts previously mastered in new and relatable contexts to help them see the practical applications of what they are learning
- ☐ Use varied and active assessments
  Changing up activities helps to keep students applying knowledge in new ways while active assessments support application of concepts rather than memorization
- ☐ Assessment Feedback
  Assessments do not have to be graded/part of the students final grade, but feedback on progress should be communicated to students

Sample Types of Assessment[1]



1) Several assessment types listed can be used as active learning activities. For more information see Active Learning on p.28.

Source: Brown P, Roediger H, and McDaniel M, *Make It Stick: The Science of Successful Learning*, Cambridge, MA: The Belknap Press of Harvard University Press, 2014; Lang J, *Small Teaching*, San Francisco: Jossey-Bass, 2016; EAB interviews and analysis.

Standardized Assessment

UNDERSTANDING THE PROBLEM

Lack of coordination and standardization across course sections leads to widely varied experiences and results for students. While in principle, students taking the same course should achieve the same learning outcomes, in practice, differences in teaching materials, styles, and assessment practices set different standards for different sections and can leave students with vastly different levels of course material mastery.

STRATEGY

Establish clear learning outcomes and a set of shared materials and assessments across course sections to support a common standard for student achievement. Instructors should regularly revisit learning outcomes to ensure concordance on student learning outcomes. Clear learning outcomes ensure assessments test the same knowledge and skills across sections.

IMPLEMENTATION GUIDELINES

Understand the pitfalls of grading practices

- Encourage concept mastery in grading rather than norm-referenced grading or "grading on a curve"
- Share information and data on the negative consequences of norm-referenced grading[1]

Provide faculty with resources on assessment

- Include information on different types of assessments and their merits, how to build assessments, and how to administer assessments
- See "Early and Frequent Low-Stakes Assessment" on p. 22 for further information on use of assessments to support student learning

Support use of shared materials by instructors

- Encourage faculty to pool and share resources to promote a more consistent use of materials across sections
- Familiarize faculty with new resources
- Support collaboration across all instructors teaching the course

Advanced: *Have instructors use the same textbooks and supplemental resources to ensure students see and learn the same material. Agreed upon resources should be determined by faculty after pooling and evaluating resources currently used across sections.*

1) Sylvia Hurtado and Victoria Sork, "Enhancing Student Success and Building Inclusive Classrooms at UCLA," UCLA, December 2015,

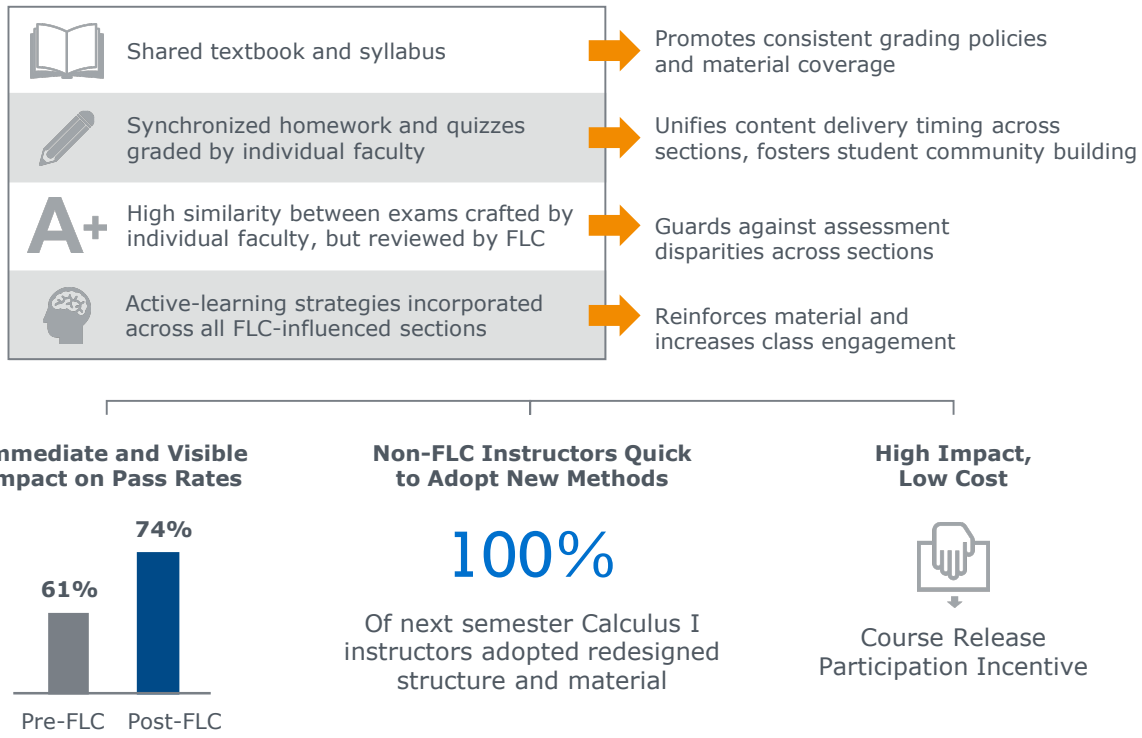
Standardized Assessment (cont.)

Boise State "Coherent Calculus" Scales Redesign Benefits to All Students

Case Study

As part of a course-based faculty learning community (FLC), Boise State University brought together instructors from a multi-section calculus course with the goal of improving teaching and learning through the adoption of shared, evidence-backed materials and approaches. They began the reform process with a shared textbook and syllabus, which allowed individual instructors freedom in determining course assignments and grading. However, instructors soon agreed that they should establish a set of shared grading policies and weighting, as well as synchronized assignment of identical homework and similar examination materials.

A Coherent Multi-Section Course



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 in the classroom, one of the most powerful means to achieve better learning outcomes (see p. 28 for further information on active learning). 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 soared to a weighted average of 74% across sections.

Boise State was able to achieve sustained reform, as all of the structure and materials developed by the FLC were adopted by 100% of calculus instructors, including non-FLC members, in the next term. There were no incentives or mandates to do so. And Boise State is continuing 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. 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.

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.

Standardized Assessment (cont.)

The Impact of Grading Practices on Student Success

Many instructors and departments favor norm-referenced grading (also known as grading on a curve) as a means of standardizing grades, particularly across large courses with multiple sections and graders. The arguments behind the practice are so widely accepted that even those who apply alternative grading practices may still "curve" the final distribution because any distribution other than a bell curve seems off. However, norm-referenced grading can have a negative impact on student success. In their report, "Enhancing Student Success and Building Inclusive Classrooms at UCLA," UCLA researchers found that norm-referenced grading "appear[ed] to exacerbate the disparity" between groups of students.

Their analysis looked at differences between groups of students based on clusters of courses applying similar grading practices. It revealed disparities between URM and non-URM students, as well as between Pell Grant recipients and non-recipients. It also revealed differences in performance between males and females depending on the type of grading system used.[1]

While the common refrain suggests that this disparity is due solely to differences in preparedness, studies (i.e., Hughes, Hurtado, and Eagan, 2014; Shapiro and Sax, 2001; Strenta, Elliot, Adair, Matier, and Scott, 1994) suggest that the disparity can be attributed, in part, to the increased sense of competition norm-referenced grading models can produce (since students are competing against everyone else in the class). Such a perception can lead some students to disengage as they feel their efforts are futile. Further, it can leave those students who are doing well feeling dissatisfied if they have mastered the material, but are not awarded an A due to the curve cut-off.

Norm-referenced grading can also distort an institution's view of instructor performance. For example, some instructors may not be able to give A's to all the students that deserve them, while other instructors may give A's to students that have not sufficiently mastered the material.

To address this issue, institutions should ensure that all instructors and faculty are well acquainted with a variety of approaches to grading, as well as the potential pitfalls of practices like norm-referenced grading. This will allow them to be more intentional in their grading practices.

1) "Enhancing Student Success: Building Inclusive Classrooms at UCLA," p. 31-34.

Sources: Dubey P, and Geanakoplos J, "Grading Exams: 100, 99, 98,…or A,B, C?", *Games and Economic Behavior* 69: no. 1, May 2010, 72-94; Grant, A., "Why We Should Stop Grading Students on a Curve," *The New York Times*, September 10, 2016; Hurdado S and Sork V, "Enhancing Student Success and Building Inclusive Classrooms at UCLA," UCLA, 2015.

Active Learning

UNDERSTANDING THE PROBLEM

Traditional stand-and-deliver lectures fail to engage students while obscuring struggling students. Such lectures ignore the challenge of student attention spans, which research suggests can be as short as 15 minutes.[1] Further, traditional lectures tend to provide few opportunities for effective knowledge retrieval practices.

STRATEGY

Incorporate student-centered active learning pedagogies in the classroom to improve mastery of competencies and support underprepared students. Such approaches allow instructors to more easily identify and engage struggling students, and also to engage well-prepared students who may have been disengaged.

IMPLEMENTATION GUIDELINES

Balance top-down support with bottom-up action

- Use course redesign stipends and grants to help incentivize and support pedagogical innovation efforts
- For further information on supporting course innovations see EAB's Scaling Learning Innovations

Provide instructors with pedagogical guidance

- Provide faculty with resources and experts who can guide them through exploration of active learning activities for the classroom
- This is frequently done through the teaching and learning center

Key elements of successful blended learning models

- Interactive software
- Individualized support for students such as on-demand assistance
- Structured progress incentives

Advanced: *Provide pedagogical training for new instructors as part of the onboarding process. University instructors rarely receive sufficient training in proven pedagogical methods for content delivery, assessment, and classroom management. As part of the new faculty onboarding process, teaching and learning centers can provide sessions on these topics. Trainers can also use this opportunity to introduce new faculty to the resources available through the teaching and learning center and other open-access resources available to them online. In doing so, institutions can reduce the lift required of new faculty to develop effective pedagogy.*

1) Wankat P, *The Effective Efficient Professor: Teaching, Scholarship and Service*, Allyn and Bacon: Boston, MA, 2002.

Source: EAB interviews and analysis.

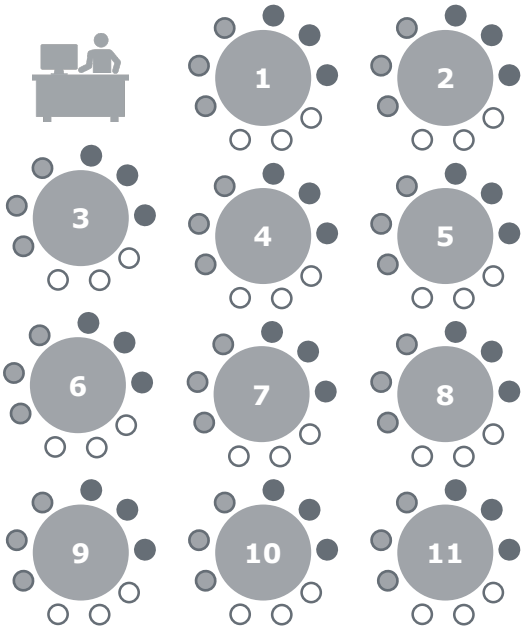
Active Learning (cont.)

Case Study

Seeking to foster a more interactive learning approach in large classroom settings, North Carolina State University (NC State) developed the SCALE-UP classroom as part of a comprehensive course redesign initiative.

The SCALE-UP classroom was designed to replicate a small group discussion experience within a large class environment. It involves 99 students at 11 tables of nine students each. Rather than having separate meetings for lectures and laboratories, the instructor explains concepts, facilitates discussions, and leads hands-on activities in a single session.

An innovative space design supports this pedagogical approach. Each table of nine students is divided into three groups, each with a laptop. Groups collaborate to solve problems, and projectors around the room allow the instructor to highlight a specific group's work to the entire class. As Bob Beichner, the faculty member who pioneered the approach at NC State explains, the round tables are the most important technology in the room because they shift the focus from passive listening to active engagement with other students.



Key Features

- Three groups of three at each table
- One laptop per group
- Combines lecture, discussion, hands-on experiments, and group work
- Whiteboards and projection screens on most walls
- Instructor moves constantly around the room
- Web-based problem delivery and grading system

NC State introduced SCALE-UP as a way to educate thousands of students each year in introductory physics. Rensselaer Polytechnic Institute and the Massachusetts Institute of Technology were also early innovators in this approach, and now over 100 colleges and universities use a version of the SCALE-UP classroom. The University of Minnesota has built numerous classrooms around this active learning set-up with a third of its students now taking courses in a SCALE-UP classroom each year[1]. Even smaller colleges, such as Ithaca College in New York, have found this approach valuable as it allows them to maintain the small group interactions that are central to their pedagogical approach, even in larger courses.

The SCALE-UP classroom is most often used for introductory courses in science, engineering, and mathematics, but the approach has also been successfully adapted for courses in history, political science, and composition.

1) Diane Peters, "Classrooms Are Getting a Makeover to Accommodate New Forms of Teaching," *University Affairs Canada*, September 28, 2016, http://www.universityaffairs.ca/features/feature-article/student-centred-active-learning-gaining-popularity/.

Source: North Carolina State University, http://scaleup.ncsu.edu; EAB interviews and analysis.

Active Learning (cont.)

The Benefits of Active Learning: Lessons from the Science of Learning

Improved academic achievement

Students retain information at higher rates and gain higher marks on examinations

Tests assessing conceptual understanding 2x higher[1]

Increased student retention

Engaged students are more likely to be retained in their academic programs (and ultimately the institution)

Reduces technical program attrition by 22%[2]

Improved student-instructor interactions

Creates increased opportunities for engagement between students and instructors in the classroom, including increased opportunities for informal feedback

Student-faculty interaction is one of the strongest factors in determining college satisfaction (Gallup-Purdue)

Supports student transition and peer relations

Helps students build positive relationships with their peers while supporting healthy psychological adjustment to college

Cooperative learning, a type of active learning, "promote[s] higher self-esteem than competitive or individualistic efforts"[3]

Additional Resources

- "Six Models for Course Redesign," The National Center for Academic Transformation, http://www.thencat.org/PlanRes/R2R_ModCrsRed.htm
- "Five Principles of Successful Course Redesign," The National Center for Academic Transformation, http://www.thencat.org/Workshops/MOSys/Workshop%20I%20Packet%20(MO).pdf
- "Large Course Redesign," The Center for Teaching and Learning UNC Charlotte, http://teaching.uncc.edu/services-we-provide/large-course-redesign
- "Active Learning Classrooms," University of Minnesota Office of Classroom Management, http://www.classroom.umn.edu/projects/ALCOverview.html
- "IMPACT: Redesigning Education," Purdue University, http://www.purdue.edu/impact/

1) Hake R, "Interactive-Engagement vs. Traditional Methods: A Six-Thousand-Student Survey of Mechanics Test Data for Introductory Physics Courses," *American Journal of Physics*, 66:1, 1998, 64.
2) Prince M, "Does Active Learning Work? A Review of the Research," *Journal of Engineering Education* 93:3, 2004, 5.
3) Johnson D, Johnson R, Smith K, "Cooperative Learning: Improving University Instruction by Basing Practice on Validated Theory," *Journal on Excellence in Teaching,* April 2013, 9.

Source: EAB interviews and analysis.

Supplemental Instruction

UNDERSTANDING THE PROBLEM

Students frequently need tutoring services to help them sufficiently master course materials in introductory courses. However, tutoring services can be difficult to scale and tutors do not always have first hand experience with the course material with which the student needs help. It can be challenging to get students to take advantage of tutoring services because they may feel ashamed that they are struggling, they are uncomfortable with the one-on-one attention, or they are convinced that tutoring will not help them improve. Further, many students are often unclear on what material they need help with while tutors are often unfamiliar with specific content to particular course sections.

STRATEGY

Supplemental instruction is a more scalable option for providing additional academic support to students. Supplemental instruction goes beyond helping students with homework, providing opportunities to review and discuss key course concepts, develop study skills, and prepare for exams. While some institutions use instructors to lead supplemental instruction, it is generally a peer-assisted study method leveraging students who have previously completed the course. Supplemental instruction can be targeted towards specific students, but is open to all.

IMPLEMENTATION GUIDELINES

Determine which courses to target

- Large courses, particularly those that are lecture-based
- Courses with high D/F, withdraw rates
- General education courses
- Critical gateway courses

Increase student engagement

- Show students how supplemental instruction can improve learning by providing data on the performance of those who did and did not participate—this is particularly effective coming from instructors
- Provide incentives for students to attend like offering low-cost snacks

Improve student learning

- Create an active learning environment
- Ensure students are able to ask questions/have input into the focus of supplemental instruction sessions
- Provide mini-assessment opportunities to help students identify where they may need the most support

Advanced: *To help finance supplemental instruction institutions should evaluate areas where tutoring is underutilized and reallocate those funds to supplemental instruction. In addition, consider including chairs and deans in the budgetary conversations to ensure they are given a voice in programming. This will ultimately help support buy-in.*

Source: EAB interviews and analysis.

Supplemental Instruction (cont.)

How Can We Help Students Learn More?

Case Study

In the Fall of 2016 Middle Tennessee State University (MTSU) implemented a Supplemental Instruction (SI) pilot program as part of a broader initiative focused on student success. In hopes of impacting the greatest number of students at critical points in the academic pipeline, the SI team chose to focus the program on high enrollment gateway courses.

After reaching out to deans and chairs, they invited faculty to participate. While they planned to begin with just three to five course sections, they launched 21 SI sections across three colleges in Fall 2016, expanding to 36 sections led by 21 SI leaders in Spring 2017.

Sessions focus not only on tackling the most difficult concepts in a course, but also on ensuring students understand how to best study for a the specific course, how to best communicate with their professors, and how to approach test taking—setting them up for success in the long run.

Key Features

- Targets high enrollment courses and high DFW courses
- Peer-assisted, group study and discussion sections meeting several times per week
- Instructor-free zones creating relaxed and safe environment for anxious students
- SI leaders are trained "near-peers" with high levels of proficiency in the course/subject area and are embedded in courses
- Sessions cover:
  - ✓ difficult course concepts
  - ✓ information recall and real world application
  - ✓ study skills
  - ✓ communication skills
  - ✓ test prep

MIDDLE TENNESSEE STATE UNIVERSITY

Scaling Academic Support

36

Number of sections with supplemental instruction

2K

Students served through supplemental instruction

22

Points higher on average on first Calculus exam for regular SI attendees in Calculus I

Since its implementation, the program has grown from 21 courses to 36, serving a population of over 2,000 students—over 10% of MTSU's total undergraduate population. And the SI team is continuing to connect with faculty interested in implementing SI for their course sections with plans to expand SI to nearly 50 sections across four colleges by the fall of 2017.

While the impact of SI varies from course to course, MTSU reports that students tend to see a half to full letter grade improvement on exams with regular SI attendance (e.g., attending at least once per week). Though some courses have seen tremendous improvement in student performance. For example, in Calculus I, students who regularly attended SI sessions saw scores on the first calculus exam rise by 22 points on average while the second exam saw a 17 point increase on average.

Source: "MTSU Unveils Reforms Geared to Improve Student Success," mtsunews.com; "Quest for Student Success 2013-2016", MTSU, http://www.mtsu.edu/docs/QuestforStudentSuccess.pdf; Supplemental Instruction at MTSU, mtsu.edu/si; EAB interviews and analysis.

Supplemental Instruction (cont.)

What Is Supplemental Instruction?

Supplemental instruction is a series of weekly study sessions for a specific course. While supplemental instruction is usually voluntary, some institutions will require students to attend sessions if they are on academic probation or as part of special programs targeted at academically at-risk students (like multi-term bridge programs).

Common Misperceptions about Supplemental Instruction

✖ Repeating lecture	✔ Reinforce taught concepts through active learning
✖ Remediation	✔ Allow for further discussion of difficult concepts or ideas

Who Leads Supplemental Instruction?

While leaders of supplemental instruction vary from institution to institution—they may be peers, teaching assistants, or faculty—the International Center for Supplemental Instruction at the University of Missouri-Kansas City notes that supplemental instruction leaders should be:

Students

Previously completed the course

Have completed SI training

A section of 10 to 20 students is an ideal size for an SI session taught by a single SI leader. Sessions with attendance above 30 students should incorporate a second SI leader if possible to maintain personal contact with a group study feel.

How Are Students Engaged in Supplemental Instruction?

- Supplemental Instruction leaders announce program in course and reach out to students referred by instructors
- Faculty member announces supplemental instruction in course, reminds students regularly about the opportunity, and refer students to SI leader(s) and sessions
- Advisors recommend students participate in supplemental instruction and in the case of some students, require their participation
- Students are shown the benefits of supplemental instruction by faculty and advisors

Source: UMKC, "The International Center for Supplemental Instruction", http://info.umkc.edu/si/; "About SI", MTSU, http://www.mtsu.edu/si/about.php; "The Leader's Guide to Supplemental Instruction", University of Missouri, 2014, http://www.mtsu.edu/si/SILeaderGuide.pdf; EAB interviews and analysis.

Course Behavior Alerts

UNDERSTANDING THE PROBLEM

Non-academic student success issues (as well as academic issues) often manifest first in the classroom. Instructors are well positioned to identify at-risk behavior due to their frequent engagement with students, however, **without a central way to track concerns, students may not receive the support they need.** Instructors do not have time to notify individual advisors about every student. At the same time, one-off notifications prevent the institution from creating a holistic profile of the student that may reveal underlying issues.

STRATEGY

Track and flag concerning student behavior and performance to ensure interventions and support services can be deployed before it is too late. The earlier at-risk students can be identified the better faculty, advising staff, and administrators can provide the proper support services to keep students on track.

IMPLEMENTATION GUIDELINES

Implement a simple reporting system

- Provide faculty with a single referral point for any student concern
- Reporting should be built directly into the electronic course rosters and submissions should auto populate with the relevant course and student data
- Provide training to anyone using the reporting system

Permit and encourage assistants to submit alerts

- Teaching assistants and resident assistants should be encouraged and enabled to submit alerts since they have frequent contact with students
- Early alerts can be included in teaching assistant job descriptions to normalize compliance

Contacting Students

- Emphasize next steps, not alert status
- Ensure alerts are handled in a way that is sensitive to both faculty and students with regard to privacy, tone, and intervention triggers

Advanced: *While the most advanced early alert systems provide opportunities for anyone working closely with students to submit concerns, the key is in the follow-up. Institutions are most successful when they are able to identify and deploy the right interventions to students whether that is a one-on-one with an advisor, meetings with tutors on study skills, or modules on financial literacy. Ensure early alert systems are set up to alert the right offices about potential student needs so that they are able to reach out in a timely manner.*

Source: EAB interviews and analysis.

Course Behavior Alerts (cont.)

Case Study

While students may be academically prepared, they may not have the discipline and maturity to be successful in their first semester on campus. For example, researchers at **Mississippi State University** found that nearly one-third of first year students exhibited attendance problems. These students also earned lower grades and persisted at lower rates than their peers despite comparable high school academic records.

To reduce first-year absenteeism, **Mississippi State** instructors in first-year classes report students with repeated absences to an office that coordinates outreach designed to reinforce the importance of attendance for success. The goal is to give students a wake-up call and gently nudge them back on course. Resident advisors inexpensively deliver quick and effective interventions. Mississippi State has found that students respond positively to non-threatening attendance interventions delivered by peers instead of administrators. Brief scripting assures these students that the university is looking out for them, and that this is not a punitive action. RAs require no incremental staffing investment and are highly effective. As a result, Mississippi State was able to increase first-year retention without increasing selectivity.

1 Faculty Prompted to Submit Alerts

- Every two weeks department heads e-mail faculty reminder to submit alerts on any first-year student missing two or more classes. Faculty encouraged to submit alerts on rolling basis
- Deans/chairs contact faculty who don't submit alerts

2 Pathfinders Office Processes Alerts

- Program coordinator processes alerts daily, creating spreadsheets with flagged students' contact information
- A student receives only one class attendance intervention per semester

3 Residency Status Determines Intervention Delivery Method

On-Campus Students

- Specially trained RAs contact students living in residence halls

Off-Campus Students

- Program coordinator contacts students living off-campus

Two Simple Reporting Mechanisms

Banner Overlay

- Banner[1] enables faculty to check attendance alert box next to student name on course roster

Pathfinders Website

- Reports also submitted via web-based submission form
- Enables teaching assistants, who do not have access to Banner, to submit alerts

At first, Mississippi State experienced pushback from some instructors. The most common objections were over issues of student autonomy and the misperception that students with attendance issues do not belong in college.

Such perceptions can be overcome with compelling data and a tight focus on first-year courses. A Mississippi State faculty member led the charge, department by department, armed with data demonstrating the clear connection between attendance and success. Recruitment efforts began in departments hosting small first-year courses where attendance tracking is easiest. Absentee data also convinced stakeholders to emphasize attendance at key events attended by incoming students.

1) Banner is an enterprise resource planning software by Ellucian

Source: EAB interviews and analysis.

Course Behavior Alerts (cont.)

Best Practices for Designing Early Alert Systems for Faculty Engagement

Make it Simple

Single Referral

Faculty given option to suggest specific response, but able to send all alerts to single office

Target High-Risk Courses and Students

Focus compliance efforts at highest-impact populations

All-Inclusive

Single system for logging academic, attendance, and behavioral alerts

Includes Assistants

Train graduate and teaching assistants to ensure coverage of introductory course sections

Address Faculty Concerns

Student Privacy

Faculty, advisors, RAs, and support staff able to submit alerts, but full access limited

Positive Messaging

Students encouraged to take clear action steps, rather than simply alerted of risk

Follow-up

Faculty informed of alert receipt, as well as progress and resolution of cases

Flexible Faculty Role

Faculty able to decide whether and how to get involved with student issues

Instructor-Specific Time Window and Grade Scale Improve Adoption

Faculty asked to determine best early assessment point

Typical: Standard early grade deadline

Faculty determine examination and grade that constitutes "on track"

Typical: Single grade threshold for institution

Faculty able to choose and prioritize resources sent to students

1. Office hours
2. Supplementary instruction
3. Tutoring center
4. Departmental resource

– *Typical: Early warning office dictates response*

Source: EAB, Defining the Faculty Role in Student Success; EAB interviews and analysis.

Automated Withdrawal Advising

UNDERSTANDING THE PROBLEM

There are sometimes good reasons for a student to withdraw from a course—when genuinely overwhelmed by its difficulty, erroneously enrolled in the wrong section, or very likely to receive a failing grade, for example. But **many students withdraw from courses or leave college entirely for reasons that might have been addressed in a simple advising conversation. Unfortunately, advisors are often uninvolved in the withdrawal process, poorly trained on how to deal with withdrawal requests, or unable to accommodate the flood of inquiries that tends to surface toward each term's withdrawal deadline.** Without good advice, avoidable withdrawals can easily lead to severe delays on degree progress.

STRATEGY

Require students to complete an online advising prompt before processing a withdrawal. Survey responses should trigger prompts about resources specific to students need while discouraging unnecessary withdrawals.

IMPLEMENTATION GUIDELINES

Direct withdrawing students to meet with their advisors

- Advisors can use survey data to help students develop a personalized plan to complete their degrees at the institution
- Advisors are aware of the breadth of resources available on campus and can recommend support offices to students

Simplify withdrawals for necessary personal reasons

- Permit students to withdraw for health or family reasons without encountering bureaucratic roadblocks
- Identify students with necessary reasons for transfer-out (e.g., desired major not offered) and allow these students to transfer seamlessly

Use data to better predict student attrition risk

- Common student selections in withdrawal survey suggest areas for resource expansion
- Student characteristics can help predict drop-out risk before students withdraw
- Student feedback from exit surveys can be used to improve withdrawal survey options and process

Advanced: *Institutions should use student answers to the online module to determine follow-up actions. For example, if a student notes that they are struggling with the course work, the tutoring center should follow up. If the student notes that they are struggling with school-family balance, day-care services should follow up with the student.*

Source: EAB interviews and analysis.

Automated Withdrawal Advising (cont.)

Case Study

To ensure students were not withdrawing for the wrong reasons, **Penn State University** built a web-based withdrawal survey module to replace what had initially been a one-click transaction. The module, based in the student information system, walks every student requesting a withdrawal through an automated series of prompts that surface relevant guidance and resources.

Each Stage of Module Provides New Information and Opportunity to Back Out

Broad Implications	Initial Student Decision	**Personalized Advice**	Final Student Decision
▪ Lists impact on aid, time-to-degree, standing, grades, benefits, and enrollment status	▪ For course drop, student inputs major, reason for drop, and anticipated grade ▪ For withdrawal, student selects from list of 22 academic and non-academic reasons	▪ Based on info provided in previous step and student degree audit	▪ Re-lists implications ▪ Requires student password to confirm final decision

40%

Students dissuaded from course drop[1]

PennState

Incorporates Advising into Formerly Transactional Process

Scales Intervention to Avoid Overburdening Advisors

Provides Data to Target Future Institutional Intervention

After initially expressing interest in withdrawal, students are shown a list of broad implications they might face—lost financial aid, delays in degree progress, changes to academic standing, and so on. If they choose to move forward with withdrawal, they must then choose among a comprehensive list of reasons, each prompting pre-determined feedback and links to relevant contacts on campus that might address their given concerns. Finally, if students persist, the module lists each potential implication of withdrawal once more and requires the student to re-enter their password to finalize the decision. Penn State reports that nearly 40% of those who begin the module do not finish, illustrating the significant change in outcomes from an immediate transaction. In the future, advisors might explore data from module interactions to study which kinds of students and which listed reasons contribute most to withdrawal requests.

1) Estimate based on 2012 data.

Source: EAB interviews and analysis.

Automated Withdrawal Advising (cont.)

Student-Facing Survey Module with Customized Recommendations

PennState

Withdrawal survey module accessible through Penn State's ELion student dashboard

1 Student confirms desire to withdraw from course or institution

- Module provides definition of withdrawal and distinction from course drop, and leave of absence

2 Student acknowledges withdrawal consequences

- Module includes resources for learning consequences to veteran benefits, housing and dining options, and financial aid

3 Student selects one or more withdrawal reason(s)

- Students can choose from 22 academic, personal, and other reasons for withdrawing
- Students select a primary reason and any number of secondary reasons

4 Withdrawal module displays targeted recommendations

- Based on selected withdrawal reason(s), students are given alternatives to withdrawal
- Provides positive and encouraging message

5 Student confirms withdrawal decision

- Students must review consequences and alternatives one additional time before processing institutional withdrawal request

Sample Withdrawal Implications

If withdraw from course

- **Grades:** You will receive "W" grade symbols for current semester courses.
- **Financial Aid:** If you are receiving financial aid, you may lose some or all of your grants, loans or scholarships. You should contact the Office of Student Aid before withdrawing.

If withdraw from institution

- **Health Insurance:** You may become ineligible for health insurance benefits. You should contact your insurance company before withdrawing.
- **Previous Semester Courses:** Courses from previous semesters with deferred grades "DF", no grades "NG" or Research "R" will not be affected by a withdrawal for the current semester.

Sample Withdrawal Reasons

Students will be given personalized recommendations based on the selected reasons.

- **Academic Risk:**
  - Failed a major assignment
  - Poor overall grade in course
  - Didn't meet conditions for major acceptance
- **Study and Time Management Skills**
  - Overwhelmed by course workload
  - Can't balance class with job schedule
  - Struggling with completing assignments
- **Personal or Family Health Concerns**
  - Child care needs
  - Personal or family illness
  - Feeling homesick
  - Feeling depressed or unmotivated
- **Major and Career Planning**
  - Major not a good fit
  - Unsure about career
  - Desired major not offered at institution
- **Low Campus Engagement**
  - Considering transferring to a new institution
  - Not sufficiently challenged
  - Feeling bored or socially disconnected

Source: EAB interviews and analysis.

Growth Mindset Priming

UNDERSTANDING THE PROBLEM

Students from lower socioeconomic backgrounds and underrepresented minority groups struggle to succeed in courses and to complete their degrees at similar rates to well-resourced students. This is due, in part, to the perception of these students that their first stumble means they will not succeed.

STRATEGY

Build confidence among new students by encouraging a growth mindset and sense of belonging. This can be done during the onboarding process through online readings and exercises where students reflect on growth and belonging in the college experience. Such activities can help to transform student perceptions of struggle from a sign of weakness and likelihood of failure to an opportunity to grow. Linking these mindset exercises to gateway courses is important because those are often the first academic barriers that students face.

IMPLEMENTATION GUIDELINES

Embed growth mindset module into onboarding process

- Embed readings on growth and belonging into the checklist of things students must complete before orientation
- Have students apply lessons from the readings by having them write an encouraging message to future students about acclimating to college life

Link relevant resources to growth and belonging exercise

- Map relevant student support services (e.g., counseling, tutoring, supplemental instruction) and campus community groups and activities (e.g. student groups, community service, student government) to lessons in the growth and belonging readings

Leverage students' growth mindset messages to support future students and better target resources

- Use the messages students create to encourage future students
- Analyze growth mindset messages to identify any patterns across student types—for example, are URM students overwhelmingly connecting with a particular lesson from the growth and belonging readings? Use such information to better target support services

Advanced: *Embed growth mindset priming throughout student experience by integrating short online modules into student pre-orientation, as well as at the beginning of challenging courses. This can be done through the LMS and should reflect previous students' experiences and lessons around finding success in the course.*

Source: EAB interviews and analysis.

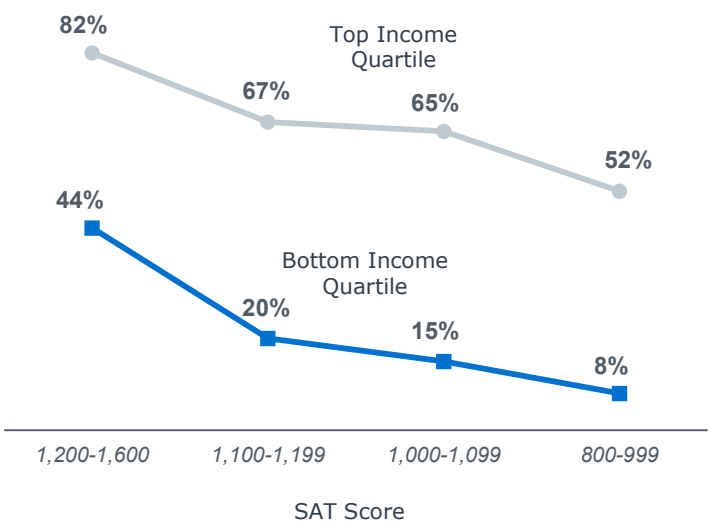
Growth Mindset Priming (cont.)

The Achievement Gap and the "Growth Mindset"

The achievement gap between well-resourced students (those with plentiful financial resources, strong familial support, and large social networks) and high-risk populations of lower socioeconomic status is one of the most pervasive and difficult challenges in higher education. This disparity in resilience often manifests in the first term on campus, as students with fewer resources may interpret initial growing pains as intractable shortcomings. For example, faced with their first difficult class, a well-resourced student might form a study group, whereas an at-risk student may assume that they are not capable of college-level work. Faced with social distress, well-resourced students can usually identify a relevant club or a network, while at-risk students are more likely to return home to rejoin their family and friends.

The Achievement Gap

Chance of Earning a Four-Year Degree by Age 24



The Growth Mindset

Intelligence Can Be Cultivated Through:

- ✔ Effort
- ✔ Strategies around studying and test taking
- ✔ Support from others

Potential Misapplications:

- ✖ Telling struggling students to just try harder
- ✖ Praising students for trying when they've made no progress
- ✖ Expecting students to always have a growth mindset

To address this gap, Carol Dweck, a psychology professor and researcher at Stanford, developed the mindset theory. The theory argues that the type of mindset one maintains impacts not only the way students see themselves in the world, but how they might perform. There are two mindsets: the belief that potential intelligence is fixed and the belief that intelligence can be expanded through effort, the application of effective strategies, and support from others.

A study[1] conducted by Dweck and several of her colleagues on the efficacy of mindset interventions, as well as UT Austin's mindset pilot (discussed on the following page) both found that exposure to this type of thinking can help improve student success rates. The key is getting students to view their academic (and non-academic) struggles as opportunities to grow.

That said, Dweck has noted several ways in which the growth mindset can and has been inappropriately applied. For example, the growth mindset is not simply about asking students to work harder or praising them for their efforts. And while students should be encouraged to apply a growth mindset to all of their studies, Dweck emphasizes the fact that students will not have a growth mindset for all things nor at all times.

1) "Mind-Set Interventions Are a Scalable Treatment for Academic Underachievement," Association for Psychological Science, Vol 26: Issue 6, 2015

Source: Carnevale A and Strohl J, "Rewarding Strivers," 2010; Gross-Loh C, "How Praise Became a Consolation Prize," *The Atlantic*, Dec, 16 2016; Parker C, "Online 'Mindset' Interventions Help Students Do Better in School, Stanford Research Shows," *Stanford News*, April 27, 2015.

Growth Mindset Priming (cont.)

Case Study

Institutions can preemptively set students up for success by addressing the gap in confidence between well-resourced students (those with plentiful financial resources, strong familial support, and large social networks) and high-risk populations of lower socioeconomic status. The University of Texas at Austin addressed this gap by allowing psychology faculty to construct a pre-orientation exercise designed to encourage resilience among high-risk students. Their hypothesis, motivated by research on the importance of self-improvement and belonging in personal success, was that introducing students to the concept of intellectual and social growth prior to their arrival on campus would increase their likelihood of completing their first set of courses.

The researchers created a controlled experiment within an online pre-orientation activity called "The UT Mindset"—some students would get a set of readings that emphasized both growth (the idea that your brain is a muscle that you can build and improve over time) and belonging (the idea that it is common and normal to feel out of place when acclimating to a new environment and that over time, everyone finds others to connect with). The control group read general passages about Austin's climate and culture. Then, students had to reflect on what they read by writing a personal message to another student struggling to acclimate to college, reinforcing and personalizing the key lessons in the readings.

In the control group, there was no clear impact measured by credit completion after the first term; and for low-risk students, neither intervention made much of an impact. But for high-risk students, the growth and belonging exercise had a significant impact: the gap between their credit completion rate and that of the low-risk population was cut in half, from 12% to 6%.

Convinced of the program's effectiveness, administrators began including this exercise in pre-orientation for all incoming students in fall 2014. The faculty behind the intervention argue that while it does not necessarily change students' beliefs immediately, it subtly improves their reactions to the first few challenges that come their way.

Source: Tough P, "Who Gets to Graduate?" *The New York Times Magazine*, May 15, 2014; EAB interviews and analysis.

Intensive Early Start Cohorts

UNDERSTANDING THE PROBLEM

Underprepared students struggle to succeed in their first several semesters, placing them at higher risk of failing and ultimately dropping out entirely. While many institutions have developed summer bridge programs to support those students who are at-risk, such programs can leave students stuck taking non-credit courses. They can also undermine student confidence or exacerbate existing insecurities by unintentionally signaling to participants that they are expected to struggle.

STRATEGY

Give students a head start through intensive for-credit course sections and counseling the summer before their first fall semester. The summer program should include not only for-credit courses that count towards the students' degree, but also supplemental instruction and advising across any areas that may become pitfalls for students.

IMPLEMENTATION GUIDELINES

Ensure students take productive credits

- Target lower-division gateway courses with high student fail or withdrawal rates—frequently English, writing, and math courses
- Offer courses that apply to all majors to ensure credits remain productive even if a student changes their intended major like English, history, or political science

Provide students with targeted support services

- In addition to traditional advising activities, use the opportunity to build students' financial literacy and study skills
- Help students succeed in their courses by requiring them to attend support services like tutoring and supplemental instruction as a group

Keep program messaging positive

- Frame participation in the program as exclusive, similar to a special session for honors students or athletes
- Do not use "at risk" in any student facing documents to prevent students from feeling discouraged

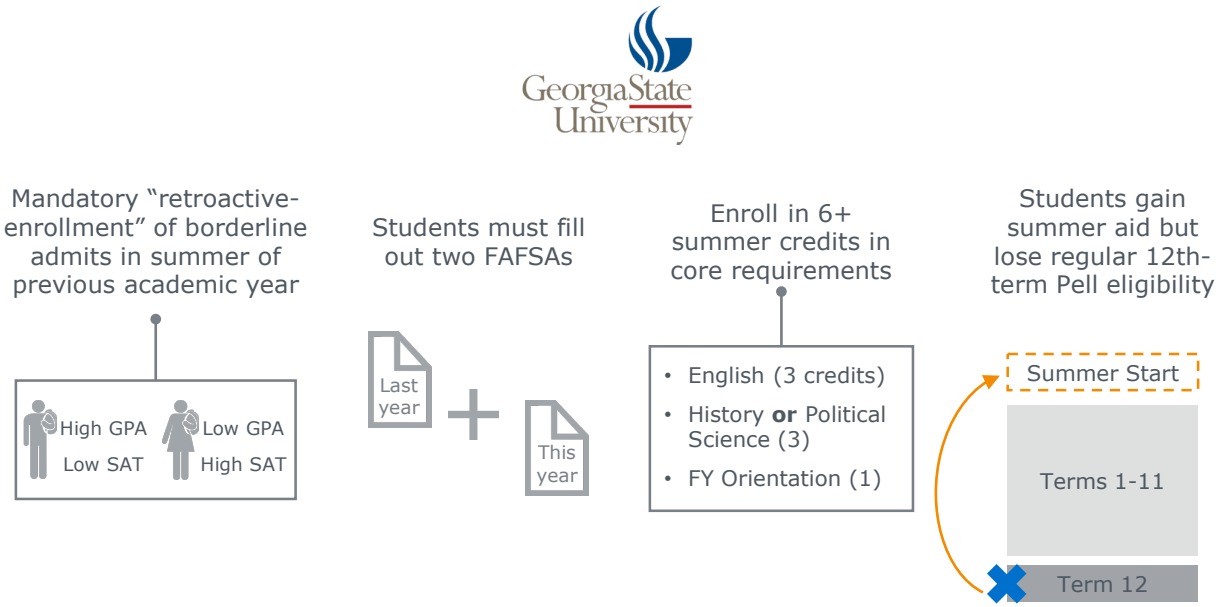
Advanced: *Ensure low-income students are able to attend by applying their twelfth semester of financial aid before their first fall at the institution. To make certain students properly complete the necessary FAFSA paperwork, the institution should provide support mechanisms to help students navigate the FAFSA upon their acceptance.*

Source: EAB interviews and analysis.

Intensive Early Start Cohorts (cont.)

Case Study

While institutions typically direct borderline admits towards remediation, Georgia State University believed these students could succeed in college-level courses with additional support. To help these students get ahead, Georgia State requires them to start college coursework the summer before their first year through its Success Academy program. The program allows students to adjust to university life through smaller classes and easier access to support services such as academic and financial counseling.



Credit Momentum Gains Outweigh Pell Eligibility Risk

Success Academy participants get head start on credit accumulation and expected to graduate in fewer than 12 terms.

About 300 borderline-admitted students are retroactively enrolled into Summer Session, which is technically part of the academic year previous to their intended fall start date. This technicality allows Pell grant-eligible students who file two FAFSA forms to fund their summer start term with federal aid. Pell funding requires part-time students to be enrolled in at least six credit hours of courses, so these early start students take seven credit hours in courses carefully selected to apply across all majors (limiting the delays due to major-switching later on).

Early start students attend courses already offered in summer term, taking classes as a cohort along with juniors and sophomores, which provides them with confidence-building role models—and also avoids extra costs associated with opening additional course sections.

Though students forego their twelfth term of Pell eligibility by applying aid to summer instruction, previous experience of Georgia State faculty and administrators suggests that students who complete meaningful credit early and build confidence are unlikely to take six full years to graduate.

Source: EAB interviews and analysis.

Intensive Early Start Cohorts (cont.)

Early Start Success Program

What It Is

The Early Start Success Program gives students the opportunity to get onto campus early, build relationships, study skills, and start earning credits towards their degree. Students receive support and guidance throughout the program.

Why Participate

Students develop essential skills for success, like study habits, financial literacy, and leadership skills. Students also have the opportunity to work closely with academic advisors and peer mentors to build a degree plan and learn about other students' experiences.

Requirements

- ✓ Complete online participation form
- ✓ Complete FAFSA for previous year
- ✓ Complete FAFSA for coming year
- ✓ Earn a minimum of a 2.5 GPA
- ✓ Attend orientation
- ✓ Participate in weekly supplemental instruction sessions

Course Requirements

Courses

- Student Orientation (1)
- English Composition (3)
- History 101 (3) OR Political Science 101 (3)

How to Participate

- Go to the Early Start Success Program portal
- Contact the program director

Important Dates

- Participation forms due Friday, April 14
- Early Start Summer Program registration and welcome Wednesday, May 31
- Early Start Summer Program Orientation begins Thursday, June 1
- Classes begin Monday, June 5

"The Early Start Success Program allowed me to become more comfortable on campus and made me feel prepared for my first fall semester."

"I learned a ton during the Early Start Success Program from study and communication skills to where to get help on campus!"

"The Early Start Success Program was really challenging at times, but I'm so proud of all I accomplished!"

Make sure students (and parents) understand what the program is

- Keep the message positive
- Avoid using terms like at-risk and remediation

Call out the benefits of participating in the program

- Lay out the connections they'll make and the skills they'll build
- Consider including information on student success rates due to participation in the program

Clearly lay out program requirements

- What are the requirements?
- What activities will they participate in?
- How do students sign up to participate?
- What dates do they need to be aware of?
- Include any links to further information and application materials

Quotes from past participants

- Testimonies from past participants can help get new students excited about the program and interested in participating

Source: "Success Academy," Georgia State University; http://success.students.gsu.edu/success-academy; EAB interviews and analysis.

Accelerated Catch-Up Terms

UNDERSTANDING THE PROBLEM

When students drop a traditional, full-term course or withdraw after the drop deadline, they face three main risks: falling below full-time enrollment status and losing financial aid eligibility, delaying completion of a critical prerequisite by one or more terms, and struggling to catch up in new courses after missing the first several class sessions. In the worst cases, dropping or withdrawing from a course can lead to the student ultimately dropping out of the institution entirely.

STRATEGY

Offer accelerated "catch-up" courses for students who drop or withdraw early in a term, allowing them to maximize their course load, prevent delays in degree progress, and enroll without burdensome schedule restraints. These accelerated offerings can be run online or face-to-face, but should meet more frequently or for longer periods to ensure all necessary material is covered.

IMPLEMENTATION GUIDELINES

Determining which courses should have "catch-up" term options

- Lower-division courses with large enrollments
- Courses enrolling a higher-than-average share of students on financial aid
- Courses that meet general educational requirements
- Prerequisites for a particular major or program

"Catch-up" term courses as interventions with at-risk students

- Monitor registration records through mid-term for students who drop, withdraw, or miss the registration deadline
- Inform at-risk students of accelerated alternatives prior to the secondary term

Administering catch-up terms

- Department chairs should assess the capacity of current faculty to offer additional "catch-up" offerings
- Distribute financial aid based on current enrollment rather than projected enrollment to help prevent students from having to repay excess aid

Advanced: *Automate student notification by linking messages to a web-based withdrawal module, similar to Automated Withdrawal Advising, to enable students to seamlessly shift from course withdrawal to registering for an applicable accelerated offering.*

Consider pairing supplemental instruction to accelerated course sections to ensure underprepared students have the support they need.

Source: EAB interviews and analysis.

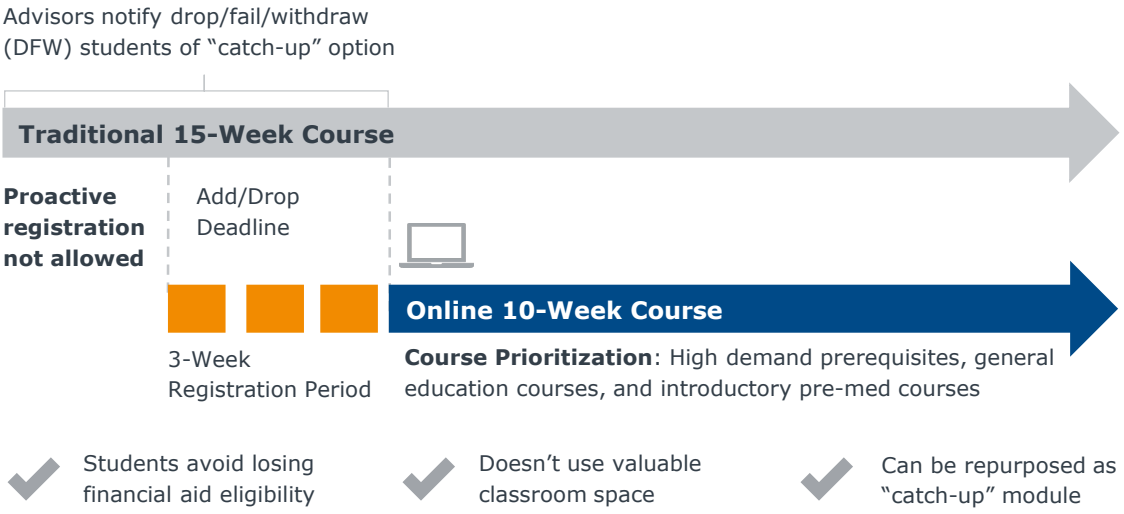
Accelerated Catch-Up Terms (cont.)

Case Study

Several departments at the University of Alabama have addressed the challenges associated with withdrawals by creating accelerated, online course options for students who drop or withdraw within the first five weeks of a 15-week term. Designated as Fall II and Spring II, these shorter sessions are not visible to students during initial registration to prevent them from proactively opting into the abbreviated online format intended for the students in need of a flexible alternative.

Temple University and Arizona State University have also experimented with accelerated catch-up terms using face-to-face courses that begin halfway through the regular terms and meet more frequently or for a longer duration than a typical course in order to ensure all necessary material can be covered in a shorter period of time. While the accelerated format may require intense focus from students, it allows for more in-class discussion, and institutions that have added accelerated courses report similar performance in regular-term and accelerated sections.

THE UNIVERSITY OF ALABAMA



During the first five weeks of each term, advisors monitor registration records to identify and contact students who might benefit from these offerings, which are typically high-enrollment, lower-division courses. Fall II and Spring II registration is advertised with posters and brochures around campus and in advisor offices to ensure student awareness.

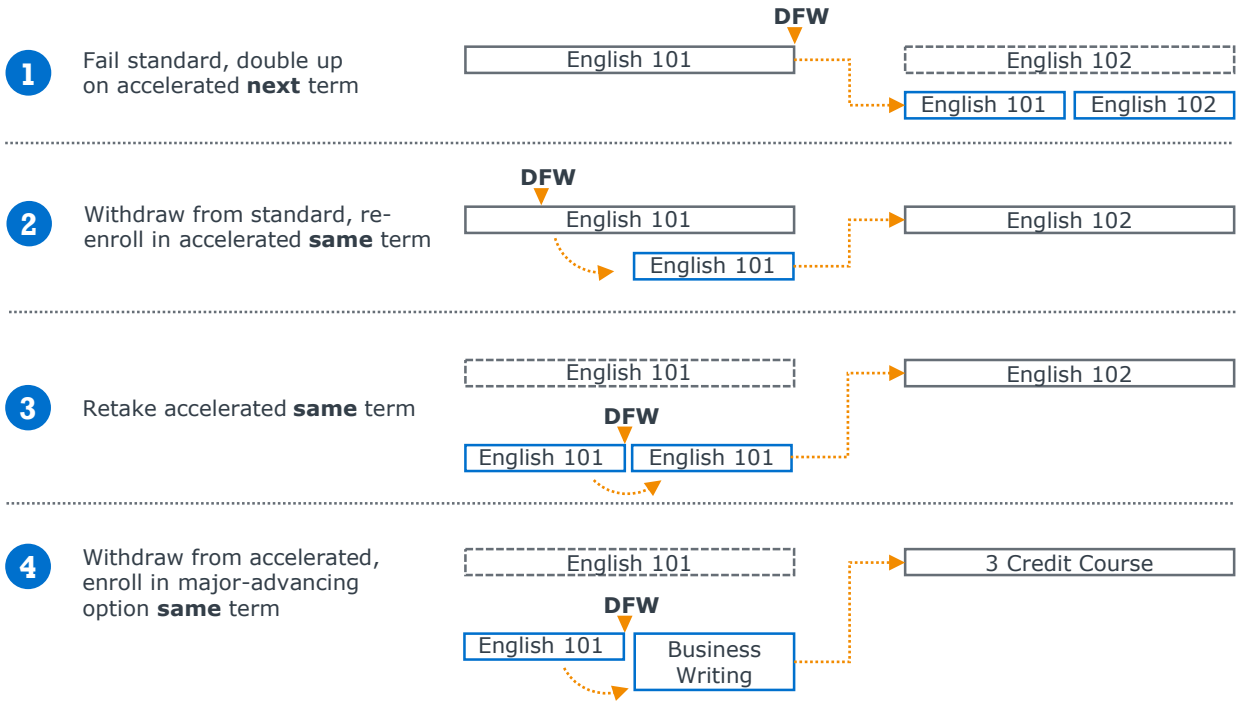
While it can be difficult to match instructor supply with last-minute student demand each term, department chairs have been relatively successful at predicting the most likely withdrawal candidates and appropriate online alternatives, drawing on a supply of available faculty able to teach high-enrollment courses. Some faculty inevitably fall short of their intended course load each term (due to under-enrollment or scheduling changes) as well, and are eligible for reassignment to withdrawal redirect courses.

Source: EAB interviews and analysis.

Accelerated Catch-Up Terms (cont.)

Depicted below are four ways for a student to gain a second chance in the same term if that student were to fail or withdraw from first-year English.

Accelerated Courses Offer Four Ways to Get Back on Pace



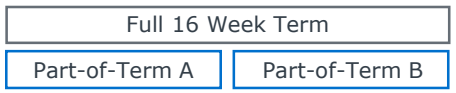
If a student were to fail a standard 16-week English course, the student could instead take two accelerated seven week courses, English 101 and 102, in their second term and remain on pace. If a student was experiencing a difficult college transition, for instance, resulting in their withdrawal from the first half of a 16-week English course, then the student could re-enroll in the accelerated version later that same term. A student might also start off in an accelerated course, then take it again in the next seven weeks if they were unsuccessful in their first attempt. Similarly, if the student were to fail or withdraw from their first course attempt, he or she might want to explore a different course and/or major option in the second half of the term, in this case Business Writing. In all of these scenarios, regardless of the misstep, a student can regain ground to complete 30 credits within the regular academic year.

Source: EAB interviews and analysis.

Accelerated Catch-Up Terms (cont.)

Both students and faculty can benefit from the added flexibility accelerated courses create in the calendar. Faculty can offer high-demand courses more frequently and have the flexibility to test new courses in accelerated or non-traditional formats. In addition, at Western Kentucky University, faculty can take a mini seven week "sabbatical," as the fulfillment of their teaching obligation can been fast-tracked in a single part-of-term. These benefits, if communicated to faculty, can help build faculty support for the initiative.

Faculty Benefit from More Options in Teaching Load Distribution



Ability to offer popular courses more frequently

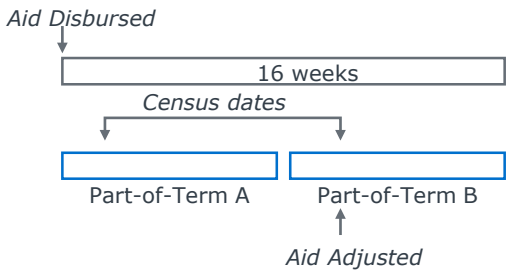
Flexibility to test 1-2 credit courses in new parts-of-term

Fast-track fulfilled teaching obligation to allow travel/leave[1]

Working Out Kinks in Financial Aid[1]

1. Disburse aid based on initial credit load, not projected full-time enrollment
2. A grace period between census dates allows students dipping below 12 SCH to restore full load before aid adjustments
3. Recover unused aid overages from students dropping below initial credit load after second accelerated term drop/add date

The New Aid Adjustment Cycle



However, parts-of-term are not without operational challenges, as many university systems and processes are built around the traditional academic calendar. For students, the most consequential of these challenges is establishing financial aid eligibility. One way institutions can proactively address this concern is through systematized financial aid disbursement and alignment of refunds with the new parts-of-term added to the academic calendar.

Temple University has done this by disbursing aid at the beginning of the term based on a student's current enrollment rather than projected enrollment (i.e., the financial aid office does not assume a student will take a part-of-term B course if a student is enrolled in 12 credits). Temple's aid office has determined that it is better to adjust aid retroactively rather than provide more up-front funding and subsequently require some students to repay unused aid. Likewise, because of the two-part term structure, Temple does not readjust aid immediately when a student drops a course in the first part-of-term; they give the student a chance to sign up for a part-of-term B course. If a student does reduce their credit load from their initial enrollment, Temple waits until the final census after part-of-term B to ask the student to return their unused aid dollars.

Despite these challenges, overall, regular-term accelerated courses financially benefit students, as students can remain on-pace without substantially adding costs by enrolling in alternative terms.

1) For full-time students. Full-time indicates a +12 credit hour load.

Source: Western Kentucky University, "An Increased Emphasis on Bi-Term Courses at WKU?" https://www.wku.edu/convocation/documents/increased_emphasis_on_biterms.pdf; EAB interviews and analysis.

Appendix

Recommended Reading

Factors Impacting Student Success in Gateway Courses

APLU and Coalition of Urban Serving Universities, "Removing Bottlenecks: Eliminating Barriers to Completion," *Collaborating for Change*, http://usucoalition.org/images/TCC_Removing_Bottlenecks.pdf.

Benford R, et al., "Factors Affecting Student Academic Success in Gateway Courses at Northern Arizona University," NAU Center for Science Teaching and Learning, 2006, http://www2.nau.edu/~facdev-p/TR/Factors.pdf.

Dweck C, *Mindset: The New Psychology of Success*, New York: Penguin Random House, 2006.

Hurtado S, Sork VL, "Enhancing Student Success and Building Inclusive Classrooms at UCLA," University of California, Los Angeles, 2015, http://evc.ucla.edu/reports/Enhancing%20Student%20Success%20-%20Building%20Inclusive%20Classrooms%20at%20UCLA%20Report_December%202015%20-Hurdado%20-%20Sork-%20-%20Report.pdf.

Kerr A, "Teaching and Learning in Large Classes at Ontario Universities: An Exploratory Study," Higher Education Quality Council of Ontario, 2011, http://www.heqco.ca/SiteCollectionDocuments/Teaching%20and%20Learning%20in%20Large%20Classes%20ENG.pdf.

Moore C, Shulock N, "Student Progress Toward Degree Completion: Lessons from the Research Literature," Institute for Higher Education Leadership and Policy, 2009, https://moodle.elac.edu/pluginfile.php/62351/mod_resource/content/0/R_Student_Progress_Toward_Degree_Completion.pdf.

"Predictors of Time-to-Degree for Recent UW-Madison Undergraduates," University of Wisconsin-Madison Academic Planning and Institutional Research, 2014, https://apir.wisc.edu/timetodegree/Predictors_TimetoDegree_2014.pdf.

Swing R, "Data and Decisions for Student Success: Growing Institutional Data Capacity," presented at the Association for Institutional Research Conference: Reimagining the First Year (RFY), February 4, 2016.

Assessment and Grading Practices

Brown, P.C., Roediger, H.L., & McDaniel, M.A., *Make It Stick: The Science of Successful Learning*, Cambridge, MA: Harvard University Press, 2014.

Lang, James M., *Small Teaching: Everyday Lessons from the Science of Learning*, San Francisco: Jossey-Bass, 2016.

National Research Council, *Knowing What Students Know: The Science and Design of Educational Assessment*, Washington, DC: National Academy Press, 2001.

Appendix (cont.)

Recommended Reading

Course Redesign

Bullock D., et al., "Coherent Calculus Course Design: Creating Faculty Buy-in for Student Success," Paper presented at the 122nd ACEE Annual Conference and Exposition, Seattle, Washington, June 17, 2015, https://stem.boisestate.edu/wp-content/uploads/2011/11/CoherentCalculusCourseDesign_Final-1.pdf.

"Gateways to Completion," John N. Gardner Institute, http://www.jngi.org/g2c/.

"Instruction Matters: Purdue Academic Course Transformation (IMPACT)," Purdue University, http://www.purdue.edu/impact/.

Twigg C, "Course Redesign Improves Learning and Reduces Cost," The National Center for Public Policy and Higher Education, 2005, http://highereducation.org/reports/pa_core/index.shtml.

Twigg C, "Improving Learning and Reducing Costs: Fifteen Years of Course Redesign," *Change: The Magazine of Higher Learning*, 47: no. 6, (2015): 6-13, http://www.changemag.org/Archives/Back%20Issues/2015/November-December%202015/course-redesign_full.html.

Twigg C, "Overview of Course Redesign," The National Center for Academic Transformation, http://www.thencat.org/Articles/An%20Overview%20of%20Course%20Redesign.pdf.

"University System of Maryland Course Redesign Initiative," University System of Maryland, http://www.usmd.edu/usm/academicaffairs/courseredesign/.

Zauner S, et al., "Reengineering Developmental Math: Accelerating Student Success Through High-Return Personalized Pathway," EAB, 2013, https://www.eab.com/research-and-insights/community-college-executive-forum/studies/2013/reengineering-developmental-math.

Active Learning

Freeman S, et al., "Active Learning Increases Student Performance in Science, Engineering, and Mathematics," *Proceedings of the National Academy of Sciences of the United States of America*, 111, no. 23, (2014): 8410-8415.

Johnson D, Johnson R, Smith K, *Active Learning: Cooperation in the College Classroom*, Edina: Interaction Book Company, 1998.

Prince, Michael, "Does Active Learning Work? A Review of the Research," *Journal of Engineering Education*, 93, no. 3, (2004): 223-231, http://www4.ncsu.edu/unity/lockers/users/f/felder/public/Papers/Prince_AL.pdf.

Reacting to the Past, Barnard College, https://reacting.barnard.edu/.

"Student Engagement in Mathematics through an Institutional Network for Active Learning (SEMINAL)," Association of Public & Land-Grant Universities, http://www.aplu.org/projects-and-initiatives/stem-education/seminal/.

"Undergraduate STEM Education Initiative," Association of American Universities, https://stemedhub.org/groups/aau.

EAB Support in Student Success

Additional Resources Within and Beyond the Academic Affairs Forum

Related Resources from the EAB Academic Affairs Forum Library

EAB has compiled an extensive library of best practice studies, white papers, implementation guides, and toolkits to support our members in creating an effective resource allocation strategy. Find the below resources on *eab.com* or contact your relationship manager to learn more.

Promoting Timely Degree Completion

Reconciling Student Choice and the Four-Year Graduation Imperative

Fewer than 40% of students seeking a bachelor's degree actually graduate in four years. While attrition is one of the main causes for this low number, progress delays also keep students from graduating on time. Such delays are increasingly costly to students and to colleges and universities. This study will help you address both attrition and progress delays.

Defining the Faculty Role in Student Success

Building Ownership for Student Progression Among Individual Faculty and Distributed Academic Units

Faculty are key to any top-down student success initiative, but too often they are not involved in implementation decisions. This study will help you clarify how faculty and academic units can support campus-wide student success initiatives.

Scaling Learning Innovations

From Early Adopts to Campus-Wide

Despite a recent proliferation of teaching innovations spurred by online learning, faculty innovators still face obstacles to their efforts. This study explores strategies for academic leaders to change the campus conversation on teaching and learning, from identifying innovative faculty and reducing the risk of experimentation in the classroom to sustaining those innovations that work.

The Academic Policy Audit

Tools for Identifying and Prioritizing Institutional Barriers to Success

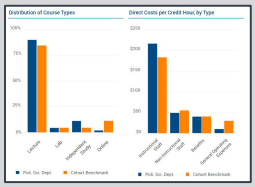
Nearly every academic policy can have an impact on student retention, progression, and timely graduation. But most are determined independently, sometimes arbitrarily, and can pose serious challenges for students. This resource will help you determine whether your institution's academic rules, regulations, and processes might create unnecessary obstacles for students, and provide resources to help you resolve those obstacles.

EAB Support in Student Success (cont.)

Additional Resources Within and Beyond the Academic Affairs Forum

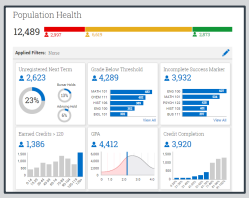
Related EAB Technologies and Services

EAB's technology and services implement and hardwire best practices across your most critical functions: enrollment management, student success, and growth and academic operations. To learn more about our technologies and services go to *eab.com* or contact your relationship manager.



Academic Performance Solutions (APS)

APS enables institutions to actively use data to set strategic goals, garner consensus around change initiatives, and make tough decisions in allocating limited academic and financial resources. APS is a solution designed to empower academic and financial leaders with the department-specific performance and cost data—as well as reliable peer benchmarks—they need to shape conversations and inform decision-making around academic planning. APS' new web platform provides high-level key performance indicators as well as snapshot analyses of program performance and costs across colleges, departments, instructors, and courses.



The Student Success Collaborative (SSC)

The Student Success Collaborative is a membership of more than 450 colleges and universities working together to improve student outcomes and experiences. Members of the Collaborative use an enterprise-wide student success management system, Campus, that helps faculty, staff, advisors and administrators support students from enrollment to graduation and beyond. Campus couples a powerful analytics engine with communication and workflow tools, including a mobile application for students. Collaborative members also benefit from consulting support and ongoing best practice research. Over the past five years, members have made meaningful student success improvements on their campuses across multiple dimensions, from persistence, graduation and time-to-degree, to staff productivity and student satisfaction.

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