REIMAGINING DEGREE PROGRESSION

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Executive Summary

Over the last few decades, college has become far more accessible -- but earning a degree is still elusive for many. Students waste valuable tuition, time, and lost income, and institutions drain valuable resources and miss out on critical revenue. Challenges that lead students to drop out include:

- Financial strain, including soaring tuition;

- Academic barriers, including gaps in knowledge or preparation; and

- Social pressure, with inadequate support and fragmented resources.

Meanwhile, institutions themselves don't make things any easier, with:

- Complicated course and major options;

- Siloed schools and departments that are difficult for students to navigate;

- Broken course registration processes; and

- Overwhelmed college and university advisors using outdated technology tools.

While we've long placed this challenge back on students, many post-secondary institutions are rethinking their structure and supports so that more students graduate and do so on time. Promising approaches include:
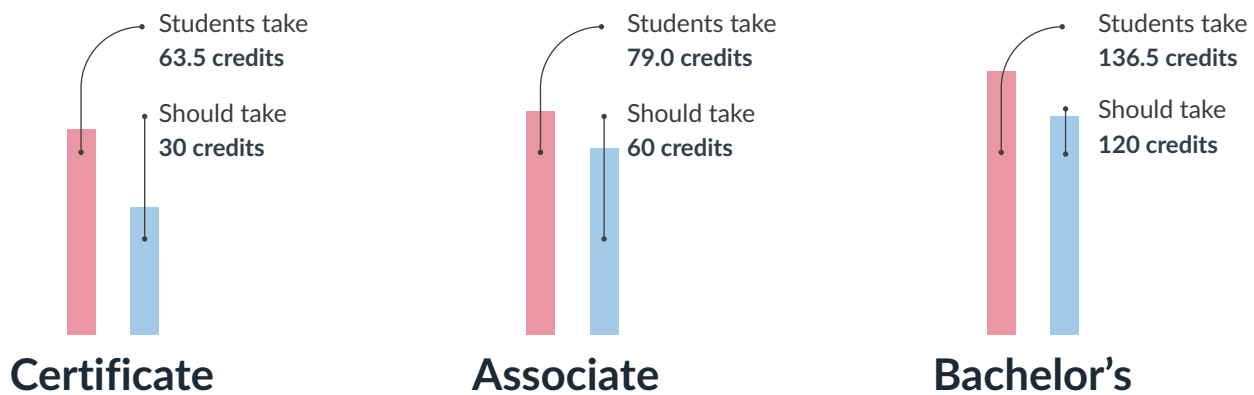
1 | Get students off to a good start in the first year, encouraging all students to choose a major by the end of the first year and to develop an individual graduation plan.

2 | Create degree maps and pathways that help students visualize the path toward graduation, paired with intensive advising that keeps more students on track.

3 | Intervene quickly when students need support through "predictive analytics" technologies.

4 | Empower students to adjust their own pathways through college and into career.

5 | Use data about student needs to structure post-secondary offerings and resources in a way that meets those needs more effectively.
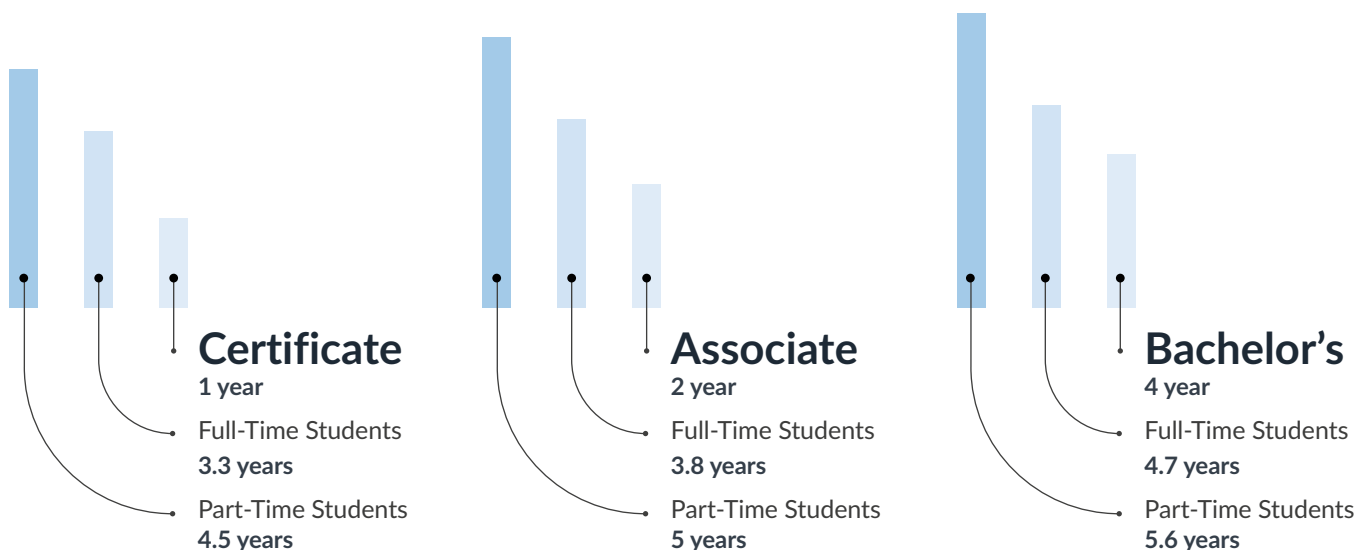
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Introduction

For so many, the value of college resides not merely in the opening of doors and horizons, but in the degree conferred upon completion.

However, for too many students, it takes too long to graduate -- if they manage to do so at all -- which is an expensive proposition that yields little benefit despite incurring many costs, including tuition, time, and lost income. "The financial prospects for college dropouts are poor, for two reasons," explains the New York Times. "First, dropouts earn little more than people with no college education. Second, many dropouts have taken on student loans, and with their low wages, they have difficulty paying off even small balances." [1]

Students are wasting time on excess credits ...

Students take **63.5 credits**
Should take **30 credits**

Certificate

Students take **79.0 credits**
Should take **60 credits**

Associate

Students take **136.5 credits**
Should take **120 credits**

Bachelor's

... and taking to much time to earn a degree.

Certificate
1 year
Full-Time Students **3.3 years**
Part-Time Students **4.5 years**

Associate
2 year
Full-Time Students **3.8 years**
Part-Time Students **5 years**

Bachelor's
4 year
Full-Time Students **4.7 years**
Part-Time Students **5.6 years**

1. https://www.nytimes.com/2016/02/21/upshot/how-to-help-more-college-students-graduate.html

Meanwhile, remaining in and graduating from college isn't just a problem for students—it is also a challenge for institutions themselves. Students that stop out or delay graduation translate into wasted resources and lost revenue. In a recent analysis of over 1,600 colleges and universities during a single academic year, the schools collectively lost close to $16.5 billion in tuition because of student attrition—or an average of $9.9 million per institution (though one school lost more than $100 million alone).[2] «Every student who drops out is one less student that you have,» notes Doug Shapiro, research director at the National Student Clearinghouse, which tracks students' post-secondary progress. **«Institutions are focused on retaining the students that they have because it's getting harder and harder to find new students.»**[3]

We've long placed this challenge back on those students, asking them to navigate their own path to graduation and career using a fragmented set of resources and scattered supports. But it is time to change that equation. Post-secondary institutions can and should; they are stepping forward to offer better solutions that take students' varied needs into account. This paper traces the problem, as well as some of the emerging solutions that offer promise in ensuring that every student can earn a meaningful college degree—on time and on budget—that prepares them for a rewarding career.

Institutions are focused on retaining the students that they have because it's getting harder and harder to find new students

2. https://vtechworks.lib.vt.edu/bitstream/handle/10919/83250/CostCollegeAttrition.pdf?sequence=1&isAllowed=y
3. https://www.npr.org/2019/03/13/681621047/college-completion-rates-are-up-but-the-numbers-will-still-surprise-you

Stellic ...

The Problem: Why Students Don't Graduate On Time—If At All

Over the last few decades, college has become far more accessible—but earning a degree is still elusive for many. Although the vast majority of incoming college students are confident they'll graduate in four years,[4] just 41% of students manage to do so in four years[5] and 58% in six.[6] This rate drops to just 30-35 percent for students who are older, attend part-time, or don't have a typical high school diploma.[7] These low rates are attributable in part to factors within the control of students, but also to structural barriers that institutions ought to remove.

STUDENT CHALLENGES: SHIFTS IN DEMOGRAPHICS AND NEEDS

College was previously an institution targeted only at an elite, homogenous few. That made it easy to develop a one-size-fits-all model, and demand that students "make or break it." Today, college students are increasingly diverse—as is the potential college experience itself. Roughly three-quarters of today's college students are "post-traditional" meaning they juggle some combination of families, jobs, and school while commuting to class while only a quarter attend school full-time, live on or near campus, and have tuition paid for by their parents.

Students struggle and often drop out of college for three primary reasons:

FINANCIAL:
although college is vital and accessible for so many more students than ever before, tuition has soared. As a result, 40 percent of all college students work at least 30 hours a week—and grade-point averages tend to decrease as the number of hours worked increases.[8]

ACADEMIC:
Many students arrive with gaps in their knowledge or preparation that make it challenging for them to persist through the academic, logistical, and financial hurdles that college presents, let alone complete their degree. At least half a million students a year are placed into remedial courses, including at least a third of low-income and minority students.[9]

SOCIAL:
College students often don't feel adequately supported to transcend financial and academic challenges. More than 40 percent of college dropouts surveyed by the University of Washington said they felt isolated or alone compared to one in five who said they had ran into financial problems or worried about falling too deeply into debt.

4. https://www.heri.ucla.edu/monographs/TheAmericanFreshman2016.pdf
5. https://www.cnbc.com/2019/06/19/just-41percent-of-college-students-graduate-in-four-years.html
6. https://nscresearchcenter.org/signaturereport16/
7. https://www.luminafoundation.org/files/resources/breaking-with-tradition.pdf
8. https://www.nytimes.com/2017/04/06/education/edlife/6-reasons-you-may-not-graduate-on-time.html
9. https://hechingerreport.org/colleges-enroll-students-arent-prepared-higher-education/

INSTITUTIONAL BARRIERS: COMPLEXITY, REGISTRATION CHALLENGES, AND RESOURCE CONSTRAINTS

In addition, colleges and universities present structural barriers to students that slow down their progress or sometimes stop it entirely. A given university's schools and departments are often run in a siloed way, as are support services and resources, making them difficult to navigate within—let alone across. Indeed, college itself has also become more complicated even for the most well-prepared student, with an exciting but often bewildering array of expectations and options for students to pursue. For example, at large state schools like the University of Michigan and Arizona State University, students choose from more than 250 majors.[10] UCLA offers 125 majors, 90 minors, and more than 3,800 courses across 109 different departments.[11] Beyond academics, students' options expand even further: one in 10 undergraduates now participate in study abroad programs[12] and more than half participate in an internship at some point in their college career.[13]

Fundamentally, many students take either insufficient credits at a time, with just 12 credits per semester counted as "full-time" but 15 per semester required to graduate with 120 credits on an eight-semester, four-year timeline; on the flip side, many bachelor's degree candidates actually tend to accrue too many credits, graduating with an average of 136.5 units.[14] Some of this is driven by changing majors, which about a third of students pursuing associate's or bachelor's degrees do at least once.[15] Increasing interest in certain majors and subjects exacerbates the challenge: for example, despite massive increases in the number of computer science majors nationwide, and demand for computer science courses by many students from other majors, the number of tenured faculty in the subject has not risen accordingly.[16] As a result, students are left in the lurch. Last year at the University of Pennsylvania—where the number of students majoring in computer science tripled in a decade from 250 students in 2007 to 800 in 2017[17] —a 150-student Applied Machine Learning course ended up with a 377-student wait list.[18]

Ultimately, the pathway to a degree—let alone a career—is unstructured and confusing at best, and nearly impossible to attain at worst. "To remain competitive, most colleges want to provide all of the programs that students like, so there's actually an embarrassment of choices," Dr. Anthony Carnevale, research professor and director of the Georgetown University Center on Education and the Workforce, told GoodCall News. "When 60% of the courses are not in your major and aren't relevant, this sort of cafeteria-style offering causes people to get lost in the maze of classes, and they end up not finishing."[19]

10. https://www.nytimes.com/2012/11/04/education/edlife/choosing-one-college-major-out-of-hundreds.html
11. http://www.ucla.edu/about/facts-and-figures
12. https://www.insidehighered.com/news/2018/11/13/study-abroad-numbers-continue-grow-driven-continued-growth-short-term-programs
13. https://www.naceweb.org/uploadedfiles/files/2017/publication/executive-summary/2017-nace-student-survey-executive-summary.pdf
14. http://www.completecollege.org/state_data/
15. https://nces.ed.gov/pubs2018/2018434.pdf
16. https://www.nytimes.com/2019/01/24/technology/computer-science-courses-college.html
17. https://www.thedp.com/article/2017/04/cis-coding-intro
18. https://www.thedp.com/article/2018/11/upenn-engineering-computer-science-course-waitlist-penn
19. https://www.goodcall.com/news/college-students-graduate-010855

Reimagining Degree Progression

Indeed, courses are frequently difficult to register for, unavailable at the times that work for students, or don't have enough space for all the students who are interested in or need that course to graduate. As the Southern Regional Education Board put it:
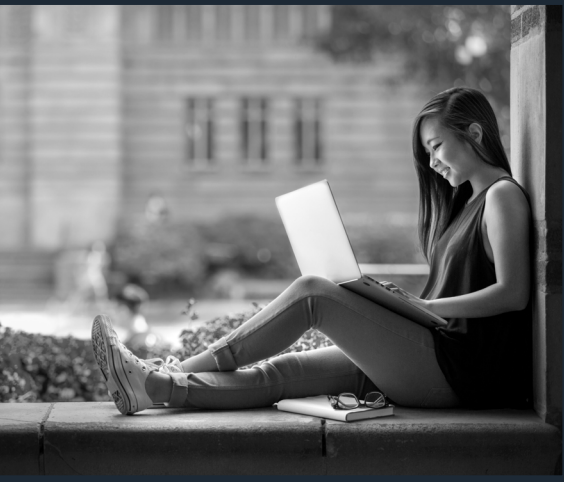
> The challenge is for all students to have the courses they need — when they need them — and to make them accessible. This involves not only complicated formulas based on the number of students needing each course among hundreds of courses, but also the task of securing appropriate-sized and appointed space for the classes. Some students have difficulty graduating on time because the courses they need are not available in a workable sequence. Missing only one prerequisite course can cost a student an entire year — and can lead to their frustration, longer time to degree completion, or possibly dropping out.[20]

Although college and university advisors are charged with the task of helping students navigate, their caseloads tend to be high, on average, between 300 and 450 students per advisor. On many campuses, advisors are saddled with outdated tools for helping students navigate their course options. As a result, students either receive shallow support, with only the most motivated students getting the kind of deep support that so many others really do need. This hits first-generation students especially hard: many feel anxious and isolated, but despite their need, they are less likely to seek out faculty and advising support.[21]

Without strong support nor the tools to navigate through to completion on their own, some students flounder. On-time graduation rates are relatively high at elite private institutions and public universities, but far lower at two-year community colleges (see graphic), where just under 20 percent of the 10 million students they enroll each year will earn an associate's degree within three years. "The same features that have enabled these institutions to provide broad access to college make them poorly designed to facilitate completion of high-quality college programs," explains the Community College Research Center, including "an array of often disconnected courses, programs and support services that students are expected to navigate mostly on their own."[22]

As a result, more time on campus doesn't translate into better outcomes. "The longer it takes, the more life gets in the way of success," notes Complete College America, finding that an extra year to earn an associate's degree or an extra two years to earn a bachelor's degree only increases graduation rates by 4.9 percent — for both groups.[23]

20. https://www.sreb.org/sites/main/files/file-attachments/10e02_promoting_culture_0.pdf
21. https://cft.vanderbilt.edu/guides-sub-pages/teaching-first-generation-college-students/
22. http://www.ct.edu/files/ssc/DavisJenkins_CCRC_Guided_Pathways_Overview_August_2014.pdf
23. https://completecollege.org/wp-content/uploads/2017/08/Time_Is_the_Enemy.pdf

Solutions: Promising New Approaches to Improving Degree Progression and Completion

As colleges and universities increasingly take responsibility for connecting students with meaningful degrees, many are finding they must rethink the structure and support systems provided by their institutions so that all students' needs are met—while also empowering students to be their own advocates. That requires them to be proactive, flexible, and to consider the student experience more holistically. For example, to increase student satisfaction, retention, and on-time graduation, Johns Hopkins' Student Services Excellence Initiative has worked with staff, faculty, and students to redesign the student experience from recruitment and admissions through to career services.[24]

Other specific ideas for supporting more college students toward on-time graduation include:

1 | Get students off to a good start in the first year.

Most colleges and universities know that success begins with getting students off to a strong start, and that should go beyond initial enrollment and orientation. Historically black institution Winston-Salem State University uses an artificial intelligence "chatbot" to send incoming students text messages about the tasks they need to complete before they arrive on campus ad provides current students with information about the university's resources.[25] Institutions should go even further, encouraging all students to choose a major by the end of the first year, and develop an individual graduation plan that outlines the courses they need to complete and the careers they're contemplating down the road. Even if they change majors or career paths later, developing a detailed plan early on gets students thinking about their long-term goals and familiarizes them with the work involved in completing a degree on time.

24. https://provost.jhu.edu/about/ssei/
25. https://www.educationdive.com/news/giving-a-nudge-how-digital-alerts-can-keep-students-on-track/545993/

2 | Create degree maps and pathways that help students visualize the path toward graduation.

Some schools are going even further than graduation goals and plans, shifting students into guided degree pathways designed to make college progression clear and achievable. "A course catalogue is not unlike an all-you-can-eat buffet: It presents students with a dizzying array of appealing options but provides little guidance on choosing the right courses, in the right order. With only minimal advising available, college students frequently make poor choices and end up with a disjointed collection of credits instead of a degree," notes Jobs for the Future, which recommends more of a prix fixe menu with narrower sequences of courses and intensive advising that together keep more students on track.[26] Florida State University's pathways work has increased its on-time graduation rate from 44 to 61 percent, with the percentage of students with excess credits dropping from 30 percent to 5 percent; a similar program at a campus of the City University of New York that included financial assistance nearly doubled graduation rates.[27]

3 | Intervene quickly when students need support.

Many institutions have embraced "predictive analytics" technologies that mine student data in order to identify students most in need of advising services. For example, Georgia State University monitors its students using 800 different academic risk factors and 14 financial indicators so advisors can ensure that they're in a major well-suited to their talents, taking classes in the correct sequence, and not loading up their schedule with classes they don't need—and can intervene swiftly when students are off track. Students are now graduating a semester sooner than before, and the university's black, Hispanic, and Pell-eligible students have graduated at or above the overall rate of the student body the past four years.[28] Some institutions go a step further, using this data to nudge students toward majors and courses they may be more likely to succeed in.

26. https://www.citylab.com/life/2017/02/why-millions-of-americans-never-finish-college/517713/
27. https://hechingerreport.org/colleges-give-drifting-students-maps-to-help-them-find-their-way-to-graduation/
28. https://www.politico.com/agenda/story/2019/01/16/tracking-student-data-graduation-000868

4 | Empower students to adjust their own pathways through college and into career—which can also make advisors more efficient

Although advising support is vital, ultimately students should be the architects of their own futures. Giving students greater control over their learning—often dubbed "student agency"—is linked to greater student satisfaction, success, and employability.[29] This means arming them not just with directories and course catalogs, but with tools that allow them to understand their desired skills and outcomes, visualize their progression toward those goals, and adjust their path toward a degree and a career. Degree audit software has helped administrators see which students are on track to complete their degree qualifications, but degree audit tools can help students directly -- letting them see how their courses and skills can add up to the degree and career they are pursuing, and distilling their course options based on degree requirements and their schedule constraints. When technology platforms make it easier for students to handle course enrollment on their own, advisors can use their time and energy to focus more on retention and completion.

29. http://www.phikappaphiforum-digital.org/phikappaphiforum/summer_2015/MobilePagedArticle.action?articleId=983223#articleId983223

CASE STUDY

Carnegie Mellon University (CMU) Deploys Tool Created by Alumni for Students

Even with a strong on-time graduation rate of 88% in 6 years and 72% in 4 years, CMU is looking for ways to increase it. Using a tool developed by recent CMU alumni, Stellic, CMU is empowering its students to envision their future and plot a course toward their dreams. The Stellic tool is available to all undergraduates—more than 85% of whom have logged in to create a plan for at least the next semester—and an increasing number of graduate students. In addition to creating a degree plan, students can experiment with how different courses might fit into their schedules, and how different majors and internships will affect their path toward their degree of choice.

The Stellic tool also helps advisors provide more focused guidance to their students. Professor Mark Stehlik, a longtime advisor in CMU's School of Computer Science as well as to the Stellic founding team, works closely with about 300 students from the time they are rising sophomores until they graduate. The school maintains a 90% on-time graduation rate, but that ratio requires a lot of hands-on information from Professor Stehlik and the school's other student advisors, who meet with students frequently throughout their years at CMU as they wrestle with what courses to take, what major to focus on, and what career or post-graduate work to pursue. "We're trying to get students to understand that what got you in was smarts and extracurriculars, but what gets you out the door is persistence," explains Stehlik. "What that means is you need to figure out your own reasonable path to a degree, not your peers' or your parents'."

Longtime CMU Registrar John Papinchak maintains student records and degree certification for all students from admission through graduation—a job that has gotten more complex as the number of degrees, majors, minors, and courses have skyrocketed. Now that all CMU undergraduates have access to Stellic, Papinchak is beginning to examine how the data analytics can help his team forecast demand for courses, which he can share with the different schools and departments, so they can plan ahead on hiring and scheduling.

Above all, Papinchak says technology tools like Stellic help foster student success by fueling better relationships and conversations. "This tool allows students to engage in more meaningful conversations with advisors and professors, and moves them toward the successful completion of the ambitions they've chosen—so they can focus on where to go and not necessarily how to get there," he says.

5 | Use data about student needs to structure post-secondary offerings and resources in a way that meets those needs more effectively.

In an analysis of colleges and universities with higher-than-expected graduation rates, the New York Times found that "colleges with higher rates of student success ... collect data on their students, study that data and use it to remove hurdles for students."[30] That means that administrators can and should use data about student enrollment and progress to refine course offerings, progressions, and schedules, as well as advisory and peer support programs. Based on its own analysis of high-performing institutions, the Southern Regional Education Board recommends that administrators use individual student graduation plans to develop an institutional master course schedule that covers at least three years, helping to ensure that students can access courses when they need them.[31]

Conclusion

The key to making a difference in student success is, as the Southern Regional Education Board has put it, "attentive leadership at many institutional levels [including deans and presidents but also registrars and financial aid officers], shown by a deep commitment to student success in all communications with students and employees and in policy decisions."[32] Such leadership is essential to ensure that institutions orient themselves toward what works for all students over the long term -- not only as they wind their way onto campus or through courses, but through to a meaningful degree and into careers.

30. https://www.nytimes.com/interactive/2019/05/23/opinion/sunday/college-graduation-rates-ranking.html
31. https://www.sreb.org/sites/main/files/file-attachments/10e02_promoting_culture_0.pdf
32. https://www.sreb.org/sites/main/files/file-attachments/10e02_promoting_culture_0.pdf

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