



Education
Advisory
Board

Student Success Collaborative

The **Murky Middle** Project

Preliminary Findings, Fall 2014



Student Success Collaborative

Project Director

Ed Venit, *Senior Director*
EVenit@eab.com

Contributing Researchers

Steve Mortimer, *Data Scientist*
Jamie Studwell, *Analyst*

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The Student Success Collaborative

EAB's Student Success Collaborative (SSC) combines technology, consulting, and best practice research to help colleges and universities use data to improve retention and graduation rates. With SSC, institutions can identify, advise and monitor key student segments at scale while leveraging real-time data to measure and optimize intervention effectiveness.

At the center of SSC is a proprietary predictive model that identifies at-risk students as well as an analytics engine that isolates systemic barriers to degree completion. To extend the reach and impact of these analytics, SSC wires the entire campus with a coordinated retention care management system that helps institutions manage student risk from identification to resolution, thereby closing the loop on support interactions. SSC enables institutions to transform insight into impact, and provides administrators with customized change management strategies to support institutional transformation.

For more information about EAB or the Student Success Collaborative, please contact:

Mary Evans, Senior Manager
EvansM@advisory.com
202-266-5424

The Murky Middle Project: Student Data Methodology

Our research was conducted using the SSC National Data Set, which contains historical student records from **73 public and private U.S. higher education institutions** that enroll between 2,000 and 40,000 undergraduates across most four-year Carnegie classifications.

The full data set (used p. 4-5) included approximately **740,000 unique student records**. To allow students at minimum of six full years to complete their studies, the data set includes records for students that began their studies between the 2000-2001 academic year and the 2007-2008 academic year. All students in the full data set meet the following criteria:

- **Full-time status** – Full-time status was defined as any student attempting 12 or more credits in their first enrolled term.
- **First-time enrollees** – Transfer students were excluded. Transfer status was determined by student admission codes, if available, or using term-level data.

For inclusion in our analyses only murky middle students (p. 6-8), students also needed to meet the following two criteria:

- **Two terms of enrollment** – To have a true first-year GPA, students needed to have enrolled in two academic terms within one calendar year of first enrollment; students that did not complete two terms were excluded from these analyses.
- **Cumulative GPA between 2.00 and 2.99** at the end of the first year of enrollment

Analyses on these murky middle students investigated the differences between graduate and dropout cohorts in terms of GPA trends, credit attempt and completion patterns, and grade distributions. In this study, all departing students are labeled “dropouts”; however, many students transfer directly or re-enroll at another institution years later.

Insight #1: Year One attrition is eclipsed by total attrition occurring in later years

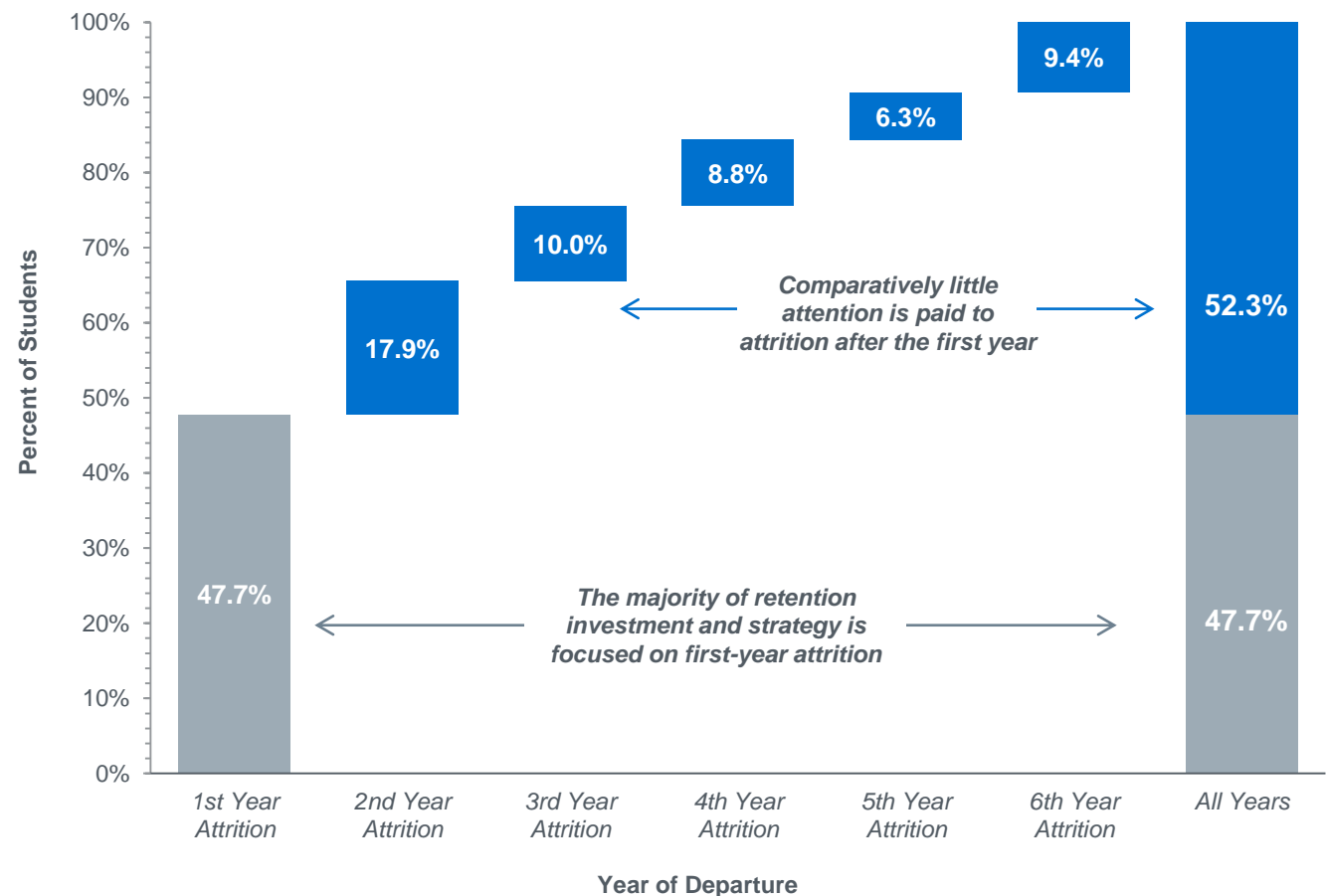
Despite years of investment, higher education has yet to meaningfully move the dial on graduation rates. Conventional wisdom and years of strategic tradition say that student success efforts should be focused on supporting first-year students as they make the difficult transition from high school.

While the first year undoubtedly represents a challenge for many students, our data show that a school focusing its efforts solely on retaining students through the first year may actually be missing a large part of the problem. While the first year is verifiably the single biggest year for loss, over half of all student departure occurs in subsequent years.

We are not recommending that schools abandon their efforts to retain first-year students. Rather, we believe these data prompt a reevaluation of strategy and a supplemental investment in retention efforts targeted at reducing attrition in the second year and beyond. Such investments are critical for ensuring that any gains made in the first year carry through to graduation.

Rethinking Our Focus

Timing of Dropout
SSC National Data Set



740K
Students in data set

48.4%
Overall graduation rate

Insight #2: Late dropouts are concentrated among students with first-year GPAs of 2.0-3.0

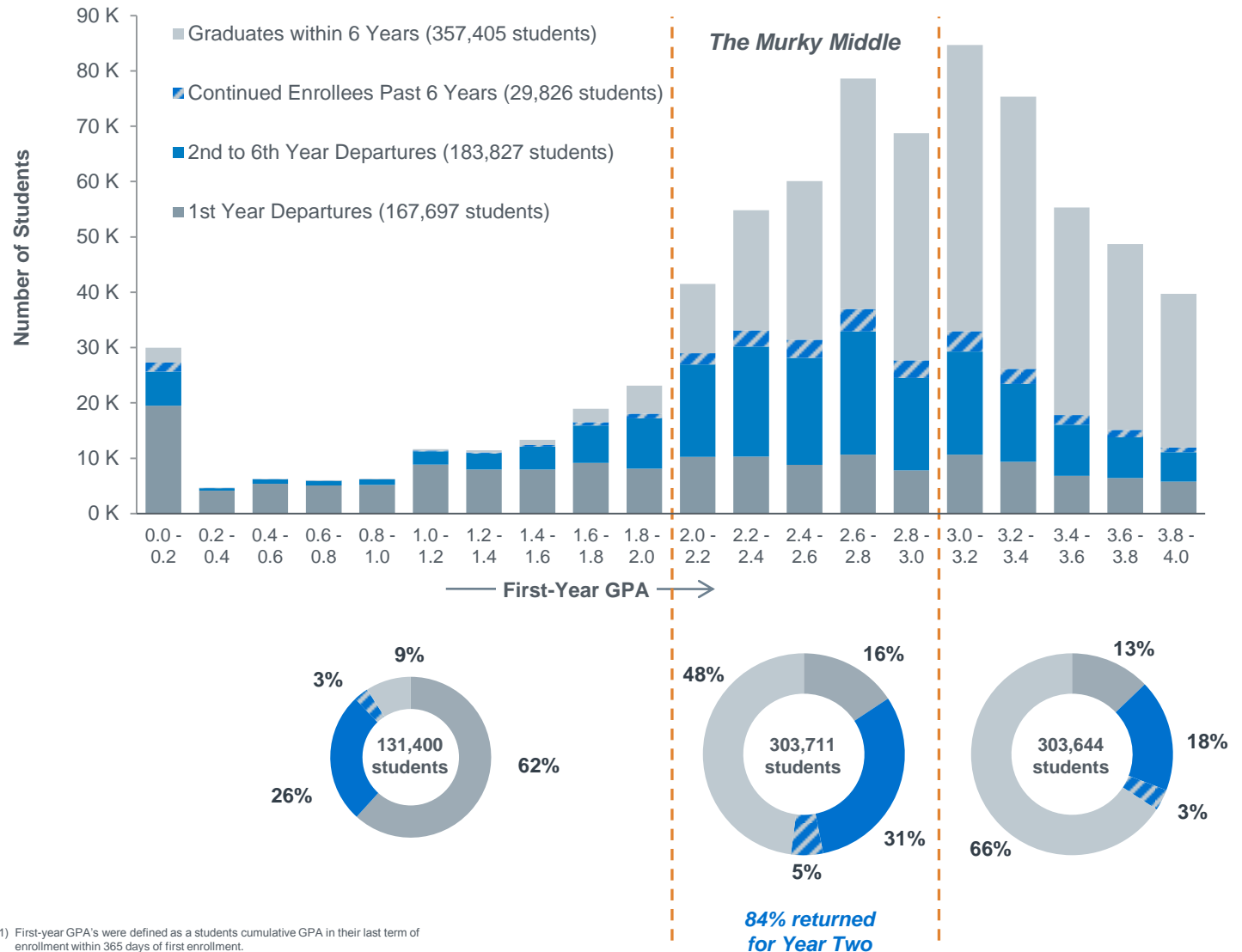
Comparatively little is known about students who leave college in their second year or later, or what can be done to better support them through to graduation. Before we can begin to develop effective intervention strategies targeting these students, we need to first develop a better understanding of who might be at elevated risk of a “late-stage dropout” (defined as dropout in the second year or later).

Unsurprisingly, early academic performance is a reliable indicator of ultimate graduation outcome. Perhaps more surprising is that the vast majority of late-stage dropouts (shown in blue on the right) were in good academic standing with a GPA over 2.0 when they returned for a second year.

Of three GPA groups, we found that students with between a 2.0 and 3.0 first-year GPA generated the largest population of later-stage dropouts. Of the students in this range, 84% returned for a second year, yet just over half ultimately graduated. Nearly one-third dropped out in the second year or later. Because of their inherent ambiguity in graduation outcome, we’ve come to refer to the entire population of mid-range GPA students as “**The Murky Middle**.”

Visualizing the Murky Middle

Histogram of All Students by First-Year GPA
SSC National Data Set



Insight #3: Murky Middle dropouts display downward trending GPAs well in advance of departure

Differentiating likely dropouts from their ostensibly identical peers represents a key challenge for working with the Murky Middle. It is unrealistic for most schools to ask already over-capacity advising offices to regularly meet with every Murky Middle student to assess risk factors and likelihood of completion. Instead, they need reliable analytic indicators to narrow their search efforts to the most likely risk cases.

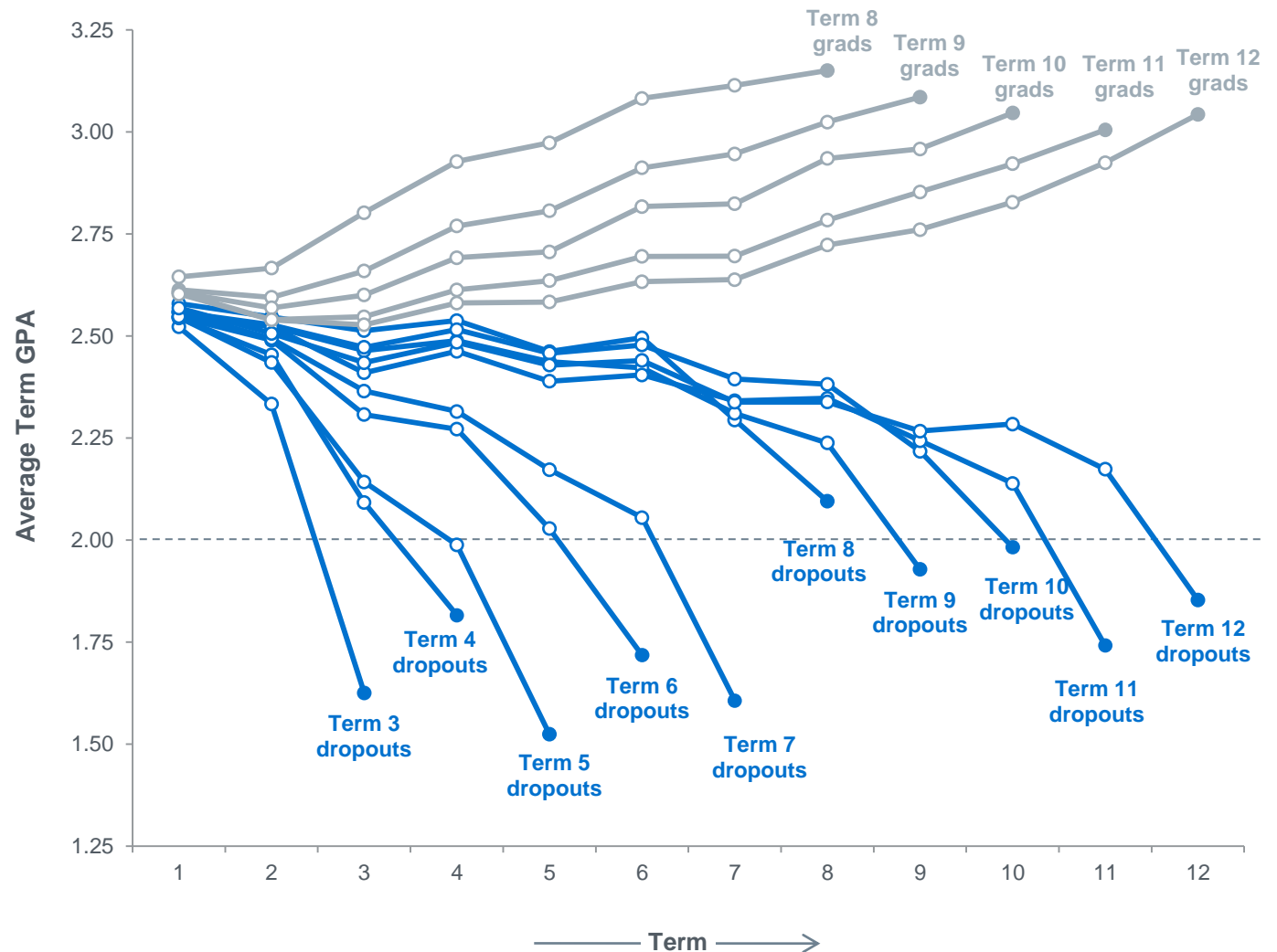
Our research has identified one such indicator: Term-over-term GPA trend. In aggregate, students who graduated improved their GPA each term. The term GPA for students who left school declined each term, with the slope of the decline correlated with the timing of departure. Notably, students did not fall below a 2.0 GPA until their final term, meaning that academic probation alone was not sufficient to catch the problem.

Perhaps our most important finding was that these downward trends initiated several terms prior to the term of departure. This suggests that downward trending GPA could be used as an early indicator to intervene with high-risk students well in advance of dropout.

Understanding GPA Trends as an Indicator of Risk

Term GPA Trends by Graduate and Dropout Cohort

SSC National Data Set, Students with First-Year GPA 2.0 to 3.0 (N = 266,298 students)



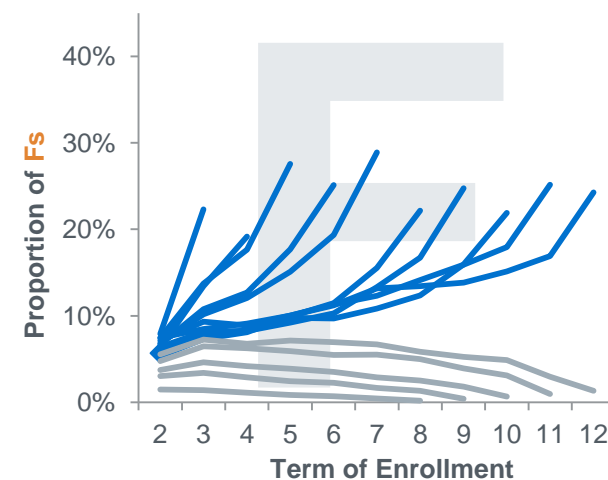
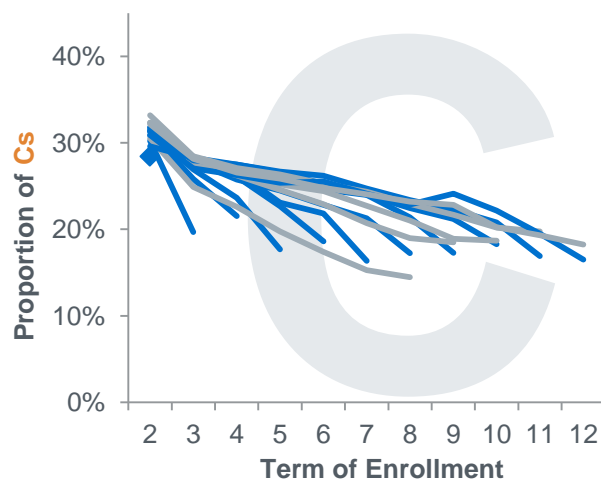
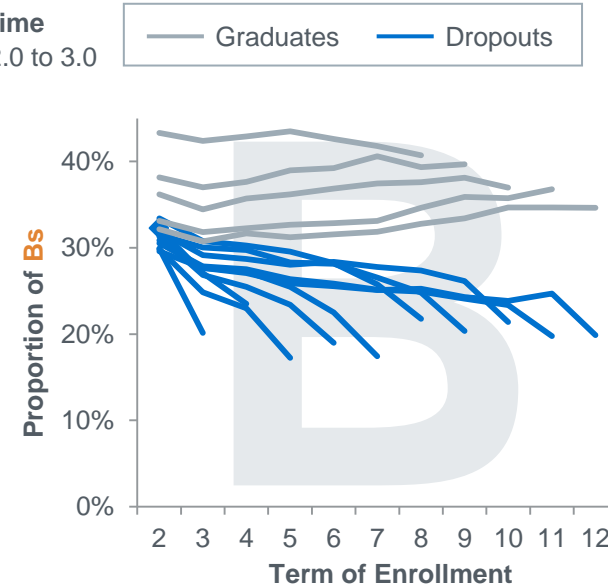
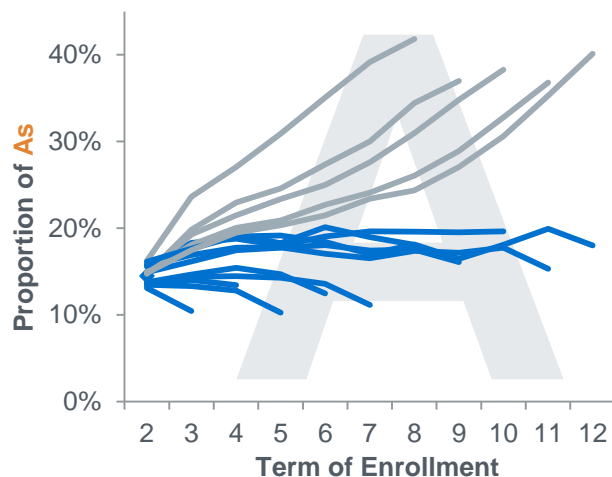
Insight #4: Downward GPA trends are driven by an increase in Fs, not a general decline across all courses

To further refine the downward GPA trend indicator, we examined the underlying grades driving these trends. We found that over time Murky Middle dropouts earned roughly the same number of As per term, fewer Bs and Cs, and a gradually increasing number of Fs. This increase in the frequency of Fs generally initiated several terms in advance of departure, with a noticeable upswing in the term immediately preceding dropout.. From these results, we can conclude that the primary driver behind the downward trending GPA seen among Murky Middle dropouts is in increase in failure in isolated courses rather than an across-the-board decline in all courses.

While all Murky Middle students earn large numbers of Bs and Cs early in college, in some cases these grades precede future As, while in other cases they precede future Fs. Further research is required to determine if there are specific foundational courses in which an early B or C is more likely to foreshadow a future F.

Drilling Into GPA Trends

Grade Distribution for Murky Middle Students Over Time
SSC National Data Set, Students with First-Year GPA 2.0 to 3.0



1) Graduate cohorts earn fewer D's over time and dropout cohorts earn similar numbers of D's each term. Graduate and dropout cohorts display similar patterns for W's as for F's above. D's and W's generally contribute less than 10% to the overall grades earned by students in our sample, therefore they were not displayed above.

Insight #5: Outcomes improve dramatically when downward trajectories are reversed

Is a student's fate sealed once his or her grades begin to decline, or can outcomes be improved if the trend is reversed? To answer this, we isolated Murky Middle students with a steady downward GPA trend followed by a reversal and steady upward trend. We then compared their graduation rates to peers with uniformly upward or downward trends. A sample analysis of students who completed at least six terms is shown on the right.

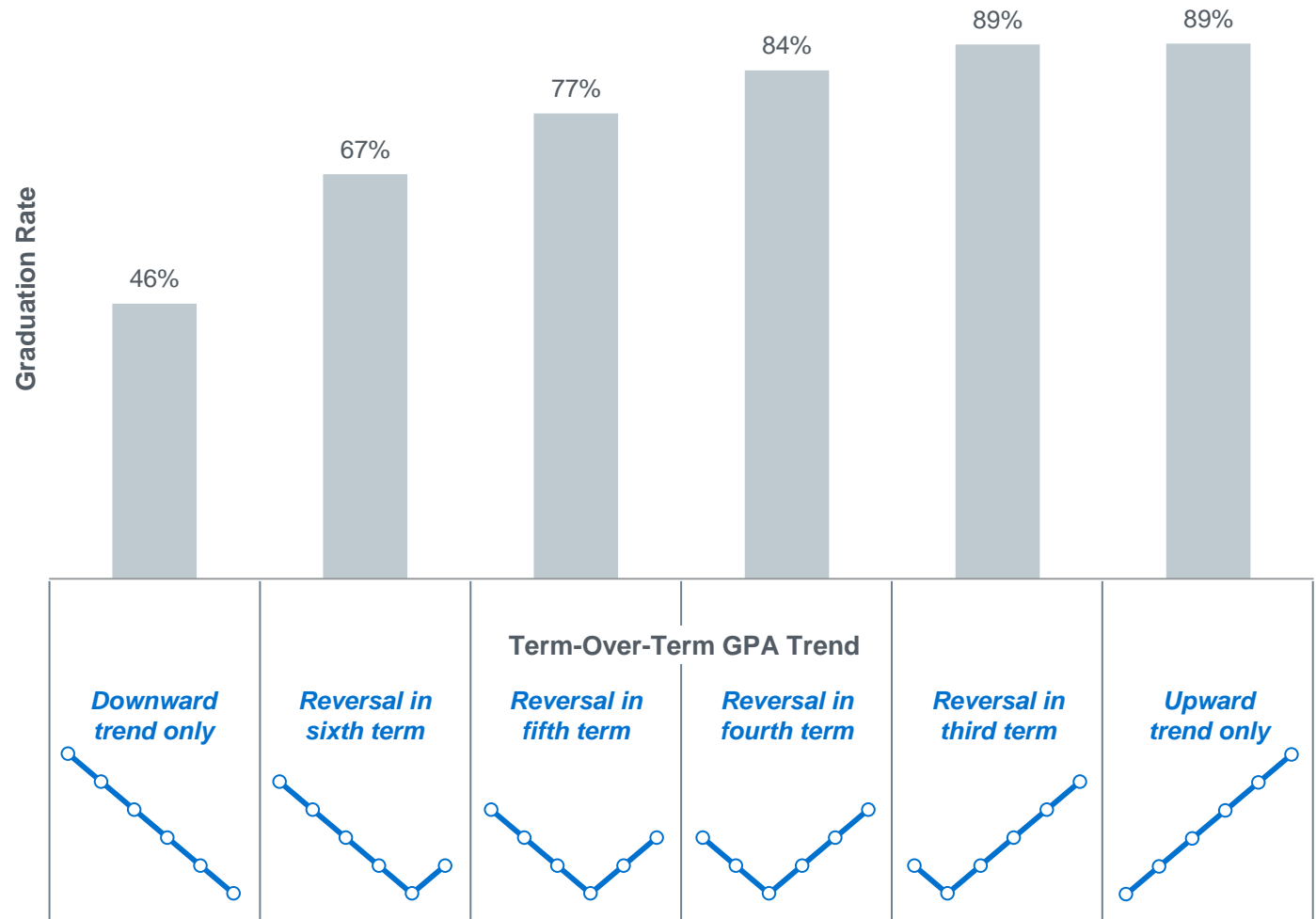
We found that students who reversed their GPA trends early on graduated at rates comparable to those who never had a downward trend. Those who reversed in later terms still experience improved outcomes when compared to students with no reversal. These results held consistent when we analyzed different term timeframes.

Understanding the root causes of downward trending GPA is beyond the scope of this study and they are likely specific to each individual student. That said, schools that are successful in intervening with downward trending students and ameliorating the factors behind these trends can expect to see notably improved outcomes.

Examining the Impact of Reversing Trends

Term GPA Trends vs. Graduation Outcomes

Murky Middle Students Who Completed At Least Six Terms



Summary Findings

The Murky Middle Project

1. Over half of all students who depart college do so in their second year or later
2. These students receive proportionately little attention and represent a largely overlooked opportunity to improve graduation rates
3. Late-stage dropouts are concentrated among students who finish their first year with a GPA between 2.0 and 3.0
4. The 2.0-3.0 GPA range represents a “Murky Middle” within which graduation outcomes are difficult to predict a priori
5. In aggregate, Murky Middle dropouts are differentiated by downward trending term-over-term GPA
6. Downward trending GPAs initiate several terms in advance of departure and could be an important indicator to focus intervention efforts
7. Downward trends are driven by an increase in Fs earned in isolated courses, not by an overall decline in all course grades
8. Further research is needed to understand if performance in certain foundational courses could be used to predict Fs in upper-level courses
9. Students who reverse a downward GPA trend can dramatically improve their odds of graduating



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2445 M Street NW | Washington DC 20037
P 202.266.6400 | F 202.266.5700