The Course Achievement Gap
Calculating a Return on Investment Outcome
Christopher M. Mullin | June 2019

For many students, their path to completing a foundational, gateway course is lengthened by a sequence of developmental education courses.\(^1\) While these courses were designed to help students, the fact is that most students who start a developmental education sequence never complete the sequence, let alone a gateway course needed to enter a program of study.\(^2\)

A body of research now shows that for many students who would have traditionally been placed in a developmental education course sequence, registering directly into a gateway course with appropriate designed support—through a co-requisite, compressed, or modularized/emporium gateway course structure—is likely a better decision.\(^3\) As a result, institutional leaders have successfully reduced a student’s time to complete a gateway course while increasing their likelihood to graduate from a program of study.\(^4\)

While we, as leaders, understand this to be true, we are often unaware of sound methodological approaches to express to vested stakeholders the impact of developmental education reforms on the campus.

One way to understand, and communicate, impact is to calculate the Course Achievement Gap.\(^5\) The Course Achievement Gap reflects the difference in course pass rates for equity-focused populations important to institutional equity agendas. The ideal percentage is zero; where there is not a difference in pass rates by course type. A factor to also consider is the actual course pass rate, which should have parity to the non-equity-focused population. For example, the achievement gap could be 0% if an equity-focus population – such as Pell Grant students – had a 25% course pass rate in both developmental and gateway courses. Such an outcome in and of itself would be highly problematic.

The purpose of this brief is to help leaders illustrate both their institution’s outcomes prior to any reforms and, for institutions that have implemented reforms, the impact of implemented developmental education reforms at their institution. To meet this purpose, this Strategic Impact Investments brief presents three inter-related parts. First is a step-by-step guide, with accompanying worksheets, to calculate an institution’s Course Achievement Gap. Second are a set of questions to lead a dialogue with senior staff once the first part is completed. Finally, there are suggested ways to communicate the information with internal and external stakeholders.
Part 1: Calculating the Course Achievement Gap

Understanding past and current outcomes requires a leader’s meaningful engagement with institutional research/institutional effectiveness staff. Calculating the Course Achievement Gap metric will enable an institution to understand the number of enrollments it took its students to complete a gateway course.

Suggested Process:

- First, have an institutional researcher conduct a Pre-Reform Impact Analysis using the steps on the accompanying worksheet.
- Second, review the Pre-Reform Impact Analysis with the institutional researcher to ensure a common understanding. There will always be limitations to data when they are analyzed. This discussion should focus on what the analysis tells you, and any limitations should be taken into consideration and prioritized as future lines of inquiry.

Pre-Reform Impact Analysis:

The pre-reform impact analysis serves as a “baseline” against which future outcomes are measured. The first step is to determine if your institution has an opportunity for more students to be successful by enrolling in and completing gateway courses using the following steps:

Step 1. Enrollment by Course Type.

Extract from your data system the number of students (headcounts) in each of two course types (Developmental Education and Gateway) for the most recent semester. The focus of the Course Achievement Gap is to identify gaps in course pass rates for equity-focused populations. In the example provided in Worksheet 1, the focus is on the gap between White and Non-White Students in the semester/year in examination. Each enrollment for each course type is further segmented by White or Non-White to understand the difference between these two populations. The segmentations should vary to meet institutional equity agendas. Examples of pairings may include, but are not limited to, Pell and Non-Pell, Adult and Traditional or Male and Female. The table may also be expanded to include columns for multiple population segments for each race/ethnicity, age groups of interest, or gender identities, for example.

Step 2. Number of Students Passing the Course.

Of those students from Step 1, enter the number of students passing the course with a grade of A, B or C (or its equivalent) in each course type. There will likely be a discussion of including those students with a grade of “D” in this number. As courses in which a student earns a grade of “D” generally do not transfer into the upper level, we suggest that they not be included. Further, students with withdrawals and Incomplete should be included in Step 1 to best understand overall student success. In all cases, any adjustments to the data should be made transparent to the audience.
## Worksheet 1: Calculation for the Course Achievement Gap

<table>
<thead>
<tr>
<th>Pre-reform Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subject:</strong></td>
</tr>
<tr>
<td><strong>Year/COHORT:</strong></td>
</tr>
<tr>
<td><strong>Courses Type Descriptors</strong></td>
</tr>
</tbody>
</table>

### Calculating the Course Achievement Gap

<table>
<thead>
<tr>
<th>Description of the Steps</th>
<th>Sample data</th>
<th>What is being calculated?</th>
<th>Insert data for your institution in the boxes below.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1:</strong> In the green squares to the right please enter the number of students (headcounts) in each of two course types for the most recent semester.</td>
<td>Developmental Non-White 4,000 White 1,000 Non-White 1,000 White 4,000</td>
<td><strong>Enrollment by Course Type</strong></td>
<td>Gateway Non-White ___ White ___ Non-White ___ White ___</td>
</tr>
<tr>
<td><strong>Step 2:</strong> Enter the number of students from step 1 earning an A, B, or C, by each course type</td>
<td>Developmental Non-White 2,000 White 600 Non-White 750 White 3,000</td>
<td><strong>Number of Students Passing the Course</strong></td>
<td>Gateway Non-White ___ White ___ Non-White ___ White ___</td>
</tr>
<tr>
<td><strong>Step 3:</strong> Calculate the percentage of students in each course type earning an A, B, or C by dividing the amount in Step 2 by the amount in Step 1.</td>
<td>Developmental 50% White 60% Non-White 75% White 75%</td>
<td><strong>Course Pass Rate</strong></td>
<td>Gateway ___ ___ ___ ___</td>
</tr>
<tr>
<td><strong>Step 4:</strong> Subtract the Course Pass Rate of Non-White students in Developmental Education courses (Step 3) from the Course Pass Rate of Non-White students in Gateway courses (Step 2) to arrive at the Course Achievement Gap.</td>
<td></td>
<td><strong>Course Achievement Gap</strong></td>
<td>-25%</td>
</tr>
</tbody>
</table>

---

[Strong Start to Finish](@Strong_Start)
Step 3. Course Pass Rate.

Calculate the percentage of students in each course type earning an A, B, or C by dividing the amount in Step 2 by the amount in Step 1. In the worksheet, for example, the number of White students passing developmental education courses entered in Step 2 (600 students) should be divided by the total number of White students enrolled in developmental education courses in Step 1 (1,000 students). The result is 600/1,000, or 60%.

Step 4. The Course Achievement Gap

Subtract the percentage of Non-White students passing Developmental Education courses (Step 2) from the percentage of Non-White students passing Gateway Courses (Step 2) to arrive at the Course Achievement Gap.

The Post-Impact Reform Analysis:

The Post-Impact Reform Analysis serves as the “future outcome” which is compared to the “baseline” calculated in worksheet 1 to determine impact. After a reform is put in place, complete worksheet 1 using a new cohort/year of data, then compare the two Course Achievement Gaps to understand the impact of the reform effort.

If your institution has already implemented reforms, complete the worksheet using data prior to the reforms and after the reforms to understand its impact.

Part 2: The Leadership Dialogues

Understanding and systematizing reform efforts requires a firm understanding by all vested stakeholders. The following process provides the foundation for a meaningful discussion of the data and the work of faculty, students, staff and administrators to understand outcomes. It is recommended that your institution’s leadership team is guided through the worksheet, filling in each data point along the way prior to engaging in a dialogue.

Recommended Process:

- Convene a meeting focused on discussing the Pre-Reform Impact Analyss and, if you have undertaken reforms, the Post-Reform Impact Analysis worksheets with your senior leadership team.
- To begin the meeting, share blank versions of the Pre-Reform Analysis and, if you have undertaken reforms, the Post-Reform Impact Analysis worksheets with attendees. Then read out the values and have participants enter the numbers in the correct boxes. Experience suggests this allows participants to focus on and engender ownership of each value rather than simply being handed a sheet of paper replete with numbers.
- Engage in a leadership dialogue with your team. Sample questions are provided to guide the conversation. Note, the following suggested questions are focused on situations where the outcome was positive. Should the outcome not be a positive one, the nature of the questions should change to focus on improvement.
Guiding Questions:

**Initial Questions for the Chief Academic Officer:**

- Which professional development activities have/can we employ to prepare faculty to teach the population experiencing the lowest course pass rate?
- Did/How can we provide sustained and meaningful professional learning opportunities that help support faculty and staff to improve individual practice?

**Initial Questions for the Vice President of Student Affairs:**

- How will/Did our placement policy change to increase the number of students enrolling in gateway courses in their first year of study? If so, how?
- Which supports did/can help students from disproportionately-impacted populations succeed in college-level math and English?

**Initial Questions for the Chief Financial Officer:**

- Which resources will need/needed to be reallocated to achieve these outcomes?
- Who is or will be impacted by a change in resource allocations? In what way?

**Initial Questions for the Chief of Staff:**

- Which institutional policies can or did change?
- What will/can we do differently?
- What will/did we learn did not work?

---

**Part 3: Crafting Takeaway Statements**

Communicating the current performance, or impact of policies and practices that transform institutional outcomes, is an important part of data-informed leadership. Presenting information in a way that is accurate, yet accessible is critical to both engendering trust and shared ownership with internal audiences while highlighting outcomes to an external lay audience.

**Recommended Process:**

- Utilize the data from the worksheet to create a figure that is accurate and accessible. This includes clear labels and a notes section that shares limitations.
- Develop a figure title that is three to five words in length and journalistic in style. A longer subtitle should be more “academic” in nature.
- Write two paragraphs. The first paragraph describes the institution’s context and, if implemented, the types of reforms undertaken. The second paragraph should describe the outcomes visually depicted in the figure only.
- Engage with the communication professionals to share the information on a one-pager. An example is provided for you below.

Examples of the recommended structure can be found in various series of one-pagers published by a variety of educational entities. Figure 1 (next page) provides an example of what a one-pager can look like and includes a description of each component part. The design structure was purposeful as it allows for institutional representatives to extract the figure for a presentation while providing a narrative to accompany the figure—further increasing its value.

We encourage you to share your one-pager with us: info@strongstart.org, with the subject line “Course Achievement Gap.”

Figure 1. Anatomy of a Strong Start to Finish “Point of Interest”

Source. Illustration developed for this publication. This Points of Interest and others can be found on the Strong Start to Finish resource library, available at www.strongstart.org/resource-library.
Supporting Information

Frequently Asked Questions:

Can this approach be used for English and math courses?

Yes.

What if we have a gateway course paired?

*If you have paired a developmental course with a gateway course, count each separate. If you have a one-credit lab paired with a gateway course, count it only as a gateway course.*

Notes:


6. See the American Association of Community College’s DataPoint series, the Florida College System’s Data Snapshot series, Strong Start to Finish’s Points of Interest series, or the Association for Institutional Research’s Data Bite series for examples. Note, for all series but the last, the author developed the series after consulting numerous media stories, Wong’s (2013) *The Wall Street Journal’s Guide to Information Graphics: The Dos and Don’ts of Presenting Data, Facts and Figures* and Tuft[e’s Visual Explanations: Images and Quantities, Evidence and Narrative.

About the Author:

Christopher M. Mullin, Ph.D., serves as director of Strong Start to Finish, Education Commission of the States.
About Strong Start to Finish

Strong Start to Finish, an initiative of the Education Commission of the States, is a network of like-minded individuals and organizations from the policy, research, and practice spaces who’ve come together for one reason—to help all students, not just the select few, find success in postsecondary education. We connect higher education systems and institutions with proven tools, quality technical assistance and financial and human capital resources to give every student the best start on the path toward their degree. We have networked higher education leaders, policy entrepreneurs, institutions and technical assistance providers to drive toward an outcome where all students pass their first credit-bearing English and math courses during the first year of study. To do this, we are identifying and scaling policies and practices to fit institutions large and small, so that all college students start and finish strong. We are developing next-generation technical assistance practices and policies to help more students succeed. And we are supporting and undertaking research and evaluation efforts that advance our collective understanding of what works, for which type of students, under what conditions. Learn more at www.strongstart.org

Acknowledgements

The content presented in this Strong Start to Finish Strategic Investment Impact was informed by research carried out by Allison Bailey, Nithya Vaduganathan, and Renee Laverdiere of the Boston Consulting Group between July 2017 and January 2018 which was supported by a grant from the Bill and Melinda Gates Foundation to examine the ROI of developmental education reforms in various institutional contexts and Belfield, C., Jenkins, D., & Lahr, H. (2016, April). Is corequisite remediation cost effective? Early findings from Tennessee. (CCRC Research Brief No. 62). New York: Teachers College, Columbia University.

Preferred Citation