College Readiness Math Initiative

YEAR 5 REPORT

The BERC GROUP
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Table of Contents

College Readiness Math Initiative

Introduction

College Spark Washington (CSW) is a grant making organization dedicated to improving educational outcomes for low-income students and students of color in Washington State. In 2014, CSW launched a multifaceted Math Initiative designed to support college readiness for WA students. The goal of the initiative is to prepare students to transition into college level math without the need for remediation or other placement courses. Three programs are included in this initiative: Intensified Algebra 1 (IA), Bridge to College (BtC), and Academic Youth Development (AYD). This report is focused specifically on Intensified Algebra and Bridge to College.

The initiative began by developing strategies and partnerships to provide programs targeted to students who performed below grade level on the Smarter Balanced Assessment. Several organizations, including CSW, Equal Opportunity Schools (EOS), Agile Mind (AM), The Dana Center (University of Texas), The BERC Group, and The Office of the Superintendent of Public Instruction (OSPI) coordinate efforts and meet regularly to manage grant implementation. Overtime, the initiative has become a series of best practices in college-readiness and student efficacy that provide additional support to students who are not prepared to succeed in college-level courses. While the seven-year initiative includes strategies for students who perform at all levels on the Smarter Balanced Assessment, the programs as designed are not intended to target specific achievement levels on the SBA.

As this initiative has progressed, program stakeholders have maintained a commitment to implementation fidelity and continuous improvement. Leaders from each partnership organization meet monthly to discuss progress, identify challenges and promising practices, and suggest opportunities for improvement. School staff receive several trainings and information sessions throughout each year, with the intention of keeping the data out in front of those working directly with students. Additionally, AM trainers continue to visit schools in active cohorts to provide in-person coaching and support.

During the 2019-2020 year, schools faced unprecedented challenges related to the COVID 19 pandemic. Teachers were tasked with altering instruction to support students in the remote learning environment. Each school district developed a unique delivery model based on family

access, student needs, and availability of resources. During immediate planning in response to closures, many districts were focused on meeting the basic needs of their communities and worked to pivot their focus from academics to community outreach. Once it became clear that school closures would persist for an extended period, school administrators and teachers refocused on how to provide safe, equitable access to instruction. With the support of AM trainers, many schools were able to provide IA students with a modified curriculum to address issues around student engagement, assessment, and access. During Spring 2020 interviews, researchers were overwhelmed by the creativity and resourcefulness IA teachers displayed in finding new and adaptive ways to meet the needs of their students in the remote setting. Some teachers shared they were mailing paper resources or flash drives for students without internet access. One school district worked with a local fast-food chain to provide access to high quality internet, and in another a teacher noted that staff were delivering work packets to students' houses.

Program Descriptions

Intensified Algebra

Agile Mind and the Charles A. Dana Center developed Intensified Algebra 1 (IA), an intervention program for students struggling in math. This 70 to 90-minute daily math course utilizes a strengths-based approach to build on students' assets and to develop their academic skills through engaging learning experiences. "Central to the program is the idea that struggling students need a powerful combination of a challenging curriculum; cohesive, targeted supports; and additional well-structured classroom time." (Inverness,2014). Intensified Algebra seeks to address the need for a robust Algebra I curriculum with embedded, efficient review and repair of foundational mathematical skills and concepts.

Bridge to College

The State Board for Community and Technical Colleges created and implemented senior year college readiness math and English courses that are designed to align with the Common Core State Standards and with pre-college courses in higher education. The courses were developed collaboratively with high school and college faculties. Seniors who complete the transition courses with a B or better will be able to move directly to college level math and English courses in college without remediation or additional placement testing.

Twenty-five schools piloted the Senior Year Transition Courses in the 2014-2015 school year, with 120 additional sites anticipated for Year 2. As of 2018-2019, 191 schools across Washington State offered BtC courses, with 200 BtC English teachers and 235 BtC math

teachers. The goal of the strategy is to improve the college readiness of students graduating high school, to develop college to school partnerships, to reinforce transcript placement efforts with the smarter balanced assessment, and to provide rigorous alternatives to algebra 2 as the third-year math course.

Evaluation Design

College Spark Washington's Math Initiative is unique because of the multi-pronged strategy to improve math. As such, in addition to this evaluation report, each partner is conducting their own research and collecting their own data on the interventions. For example, the University of Texas, Dana Center and Agile Mind are collecting data on program usage and measures of growth-mindset and non-cognitive factors related to IA. The State Board of Community and Technical Colleges are gathering additional data to assess the value of the BtC course material, the quality of the course training and technical support, and the impact on college readiness and success in college. This collaborative partnership and evaluation structure has provided valuable information throughout the duration of the project and has allowed stakeholders to make real time use of the data to effect change and improve student outcomes.

The purpose of this independent evaluation report is to assess the implementation fidelity and impact of each initiative. Programs were evaluated within different parameters due to availability and access to data. The evaluation of IA includes multiple measures of data collection and analysis to triangulate findings, increasing the reliability and validity of findings. Qualitative research measures, including semi-structured interviews, focus groups, artifact analysis and survey measurement allow for a rich, thick descriptive story of program implementation, while quantitative data helps to understand the impact of these programs on student performance. Due to availability of quantitative data, the Year 5 report outlines qualitative perspectives on IA for the 2019-2020 school year, and quantitative data for IA and BtC for years 2014-2015 through 2018-2019.

To evaluate BtC, researchers initially visited BtC English and math classrooms, and met with teachers and school administrators to understand the challenges and successes of the BtC implementation. In addition to collecting qualitative perspectives during year one, researchers built a longitudinal database to track student outcomes in math and English over time. Since Year 1, researchers have continued to gather data on seniors taking BtC math and English courses, following them into their postsecondary pathway courses. Seniors in the class of 2016, 2017, 2018, and 2019 are represented in the current report. Data points include course taking patterns, math and English GPAs, course passing rates and grades.

Intensified Algebra

Methodology

BERC researchers conducted a quasi-experimental research study, using quantitative analysis and parametric statistics to identify differences between groups of students. To strengthen the study, BERC researchers identified a matched comparison group of schools to understand the impact of the initiative more clearly. The comparison schools are matched to the grantee schools in size, percent of students receiving free/reduced lunch supports, and percent of students identifying as non-white. Throughout this report, comparison students refer to Algebra 1 students in comparison schools. A list of participating and comparison schools, by cohort, can be found in Appendices A and B.

This report contains the results of statistical tests performed to analyze differences between IA students and comparison students along several variables. Researchers conducted regression analysis using R data analysis software. Goodness of Fit tests were used to verify the statistical models for accuracy. The data was provided by The Education Research and Data Center (ERDC).

One key concept in the interpretation of statistical tests is that of statistical significance. Simply put, an analysis with a statistically significant result means that there is a 95% chance that the result is not due to random variation in the data. Researchers set the confidence level at .05 based on the abundance of research in the field of educational statistics (Trochim, 2006).

Evidence of Impact

Researchers conducted descriptive and inferential analysis on data provided by the ERDC. By understanding demographic and performance characteristics on a sample population and a comparison group, patterns and trends are identified, and causal relationship may be uncovered. In this section we provide an overview of student characteristics and metrics gathered to ascertain performance in target course and on standardized assessments.

IA Demographics

For this study, the population was disaggregated into Cohorts. As of the 2018-2019 school year, Cohort 1 has had three groups of students take Intensified Algebra, referred to as Cohort 1A, 1B, and 1C. Cohort 1A took the IA course in 2016, 1B in 2017, and 1C in 2018. Cohort 2 has had

two groups of students take IA: Cohort 2A in 2018 and Cohort 2B in 2019. Cohort 3 has had one group take the course: Cohort 3A in 2019. As data becomes available from the ERDC, charts and analyses will be updated to reflect change over time.

Table 1 and Figure 1 show the number of students in each cohort. Cohort 1A and 1B had similar student enrollment numbers while Cohort 1C had a smaller enrollment. Cohort 2, although comprised of fewer schools, offered more sections of IA in both cohort groups, resulting in a larger sample size.

Table 1

Cohort	1A	1B	1C	2A	2B	3A
Number of Students	563	557	485	712	709	591

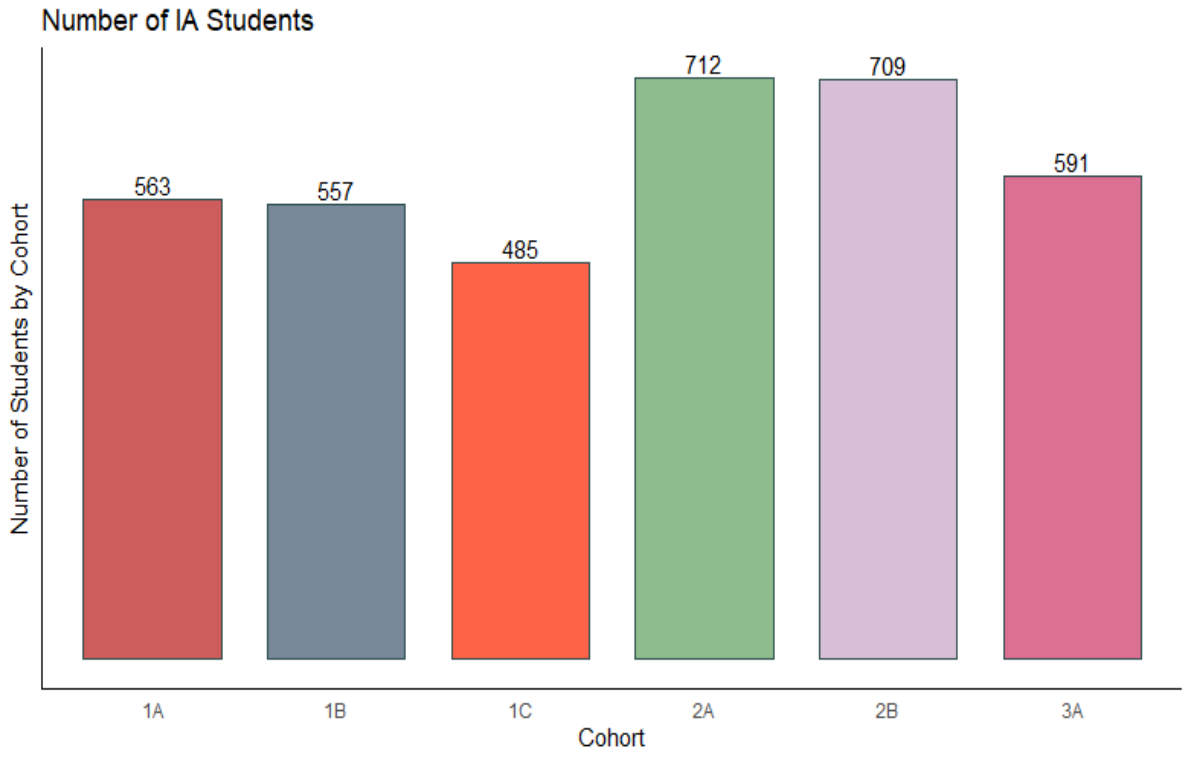

Figure 1

Table 2 displays demographic information for each Cohort, disaggregated by Cohort sub-group. The descriptive data reveals a trend over time; between 40 to 70 percent of students in Cohorts 1 and 2 enrolled in IA are Latinx students, while approximately one third of IA students are White. Other ethnicities appear to take IA at much lower rates. Cohort 3 shows an increase in the percentage of White students, up to 56%, and a decrease of Latinx students, down to 34% of students.

Table 2.

Race/Ethnicity	Cohort 1A	Cohort 1B	Cohort 1C	Cohort 2A	Cohort 2B	Cohort 3A
American Indian/Alaska Native	4%	4%	6%	4%	1%	1%
Asian	1%	2%	1%	4%	3%	1%
Black/African American	4%	2%	0%	6%	5%	1%
Hispanic/Latino of any race(s)	**50%**	**49%**	**69%**	**40%**	**45%**	**34%**
Native Hawaiian/Other Pacific Islander	0%	0%	1%	1%	2%	1%
Two or more races	4%	4%	1%	7%	7%	7%
White	**36%**	**39%**	**22%**	**37%**	**37%**	**56%**

Researchers calculated equity indexes to better understand over or underrepresentation of specific student groups in comparison to the entire IA population. An index of 100% would demonstrate an equitable distribution of students into courses. A value higher than 100% indicates over-representation while a value below 100% indicates under-representation. Figure 2 to Figure 7 show the equity distribution of each group of IA students. In every group, Latinx students are overrepresented by 20% to 60%, while White and Asian students are underrepresented. It should be noted that sample sizes are noticeably different, which can somewhat skew the equity index for the smallest groups of students.

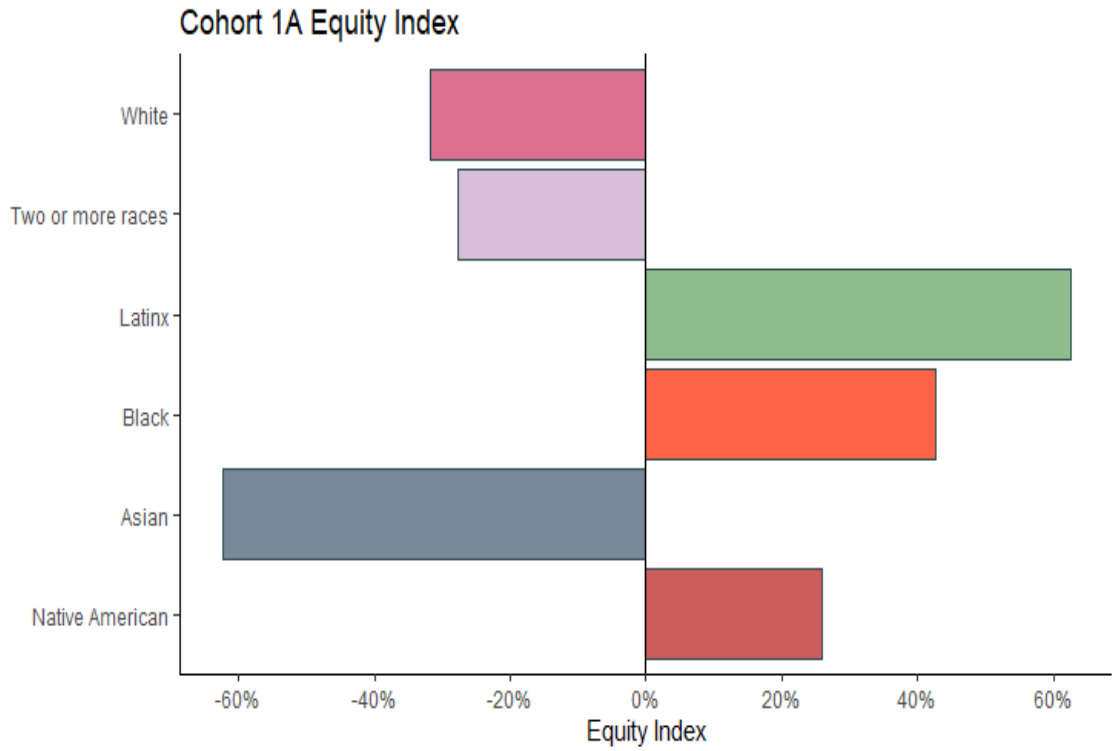

Figure 2

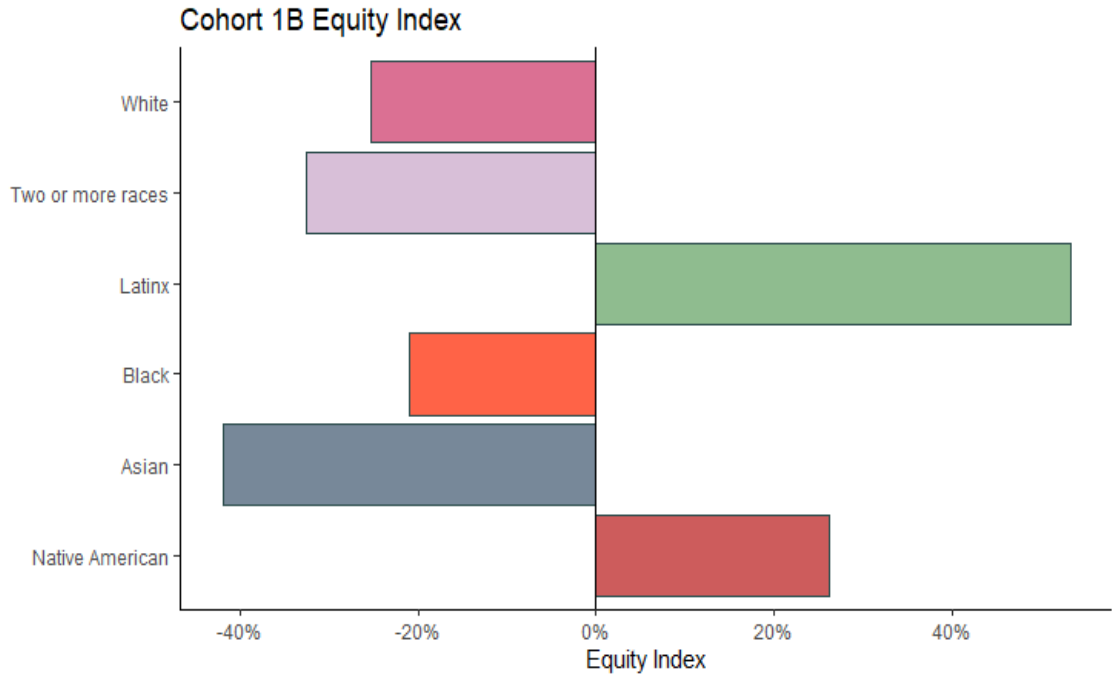

Figure 3

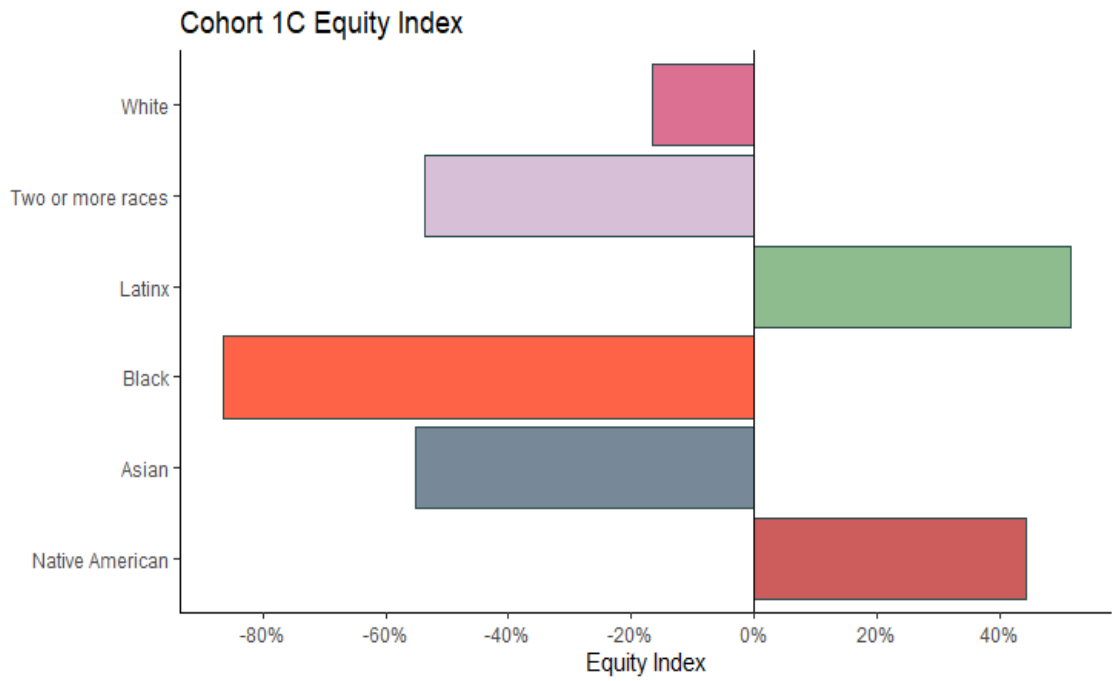

Figure 4

The representation of all three groups in Cohort 1 followed a similar pattern, with Latinx students being overrepresented between 40% and 60%, and Native American students being overrepresented between 20% and 40%. Asian and White students were consistently underrepresented. Black students were Overrepresented in Cohort 1A but underrepresented in Cohorts 1B and 1C.

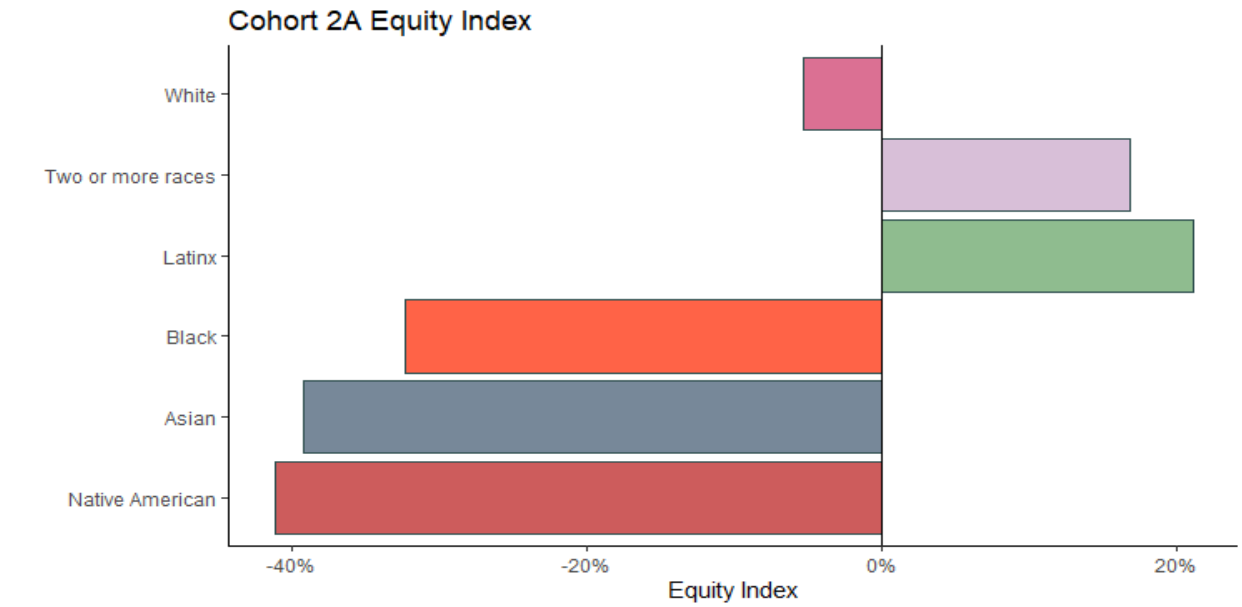

Figure 5

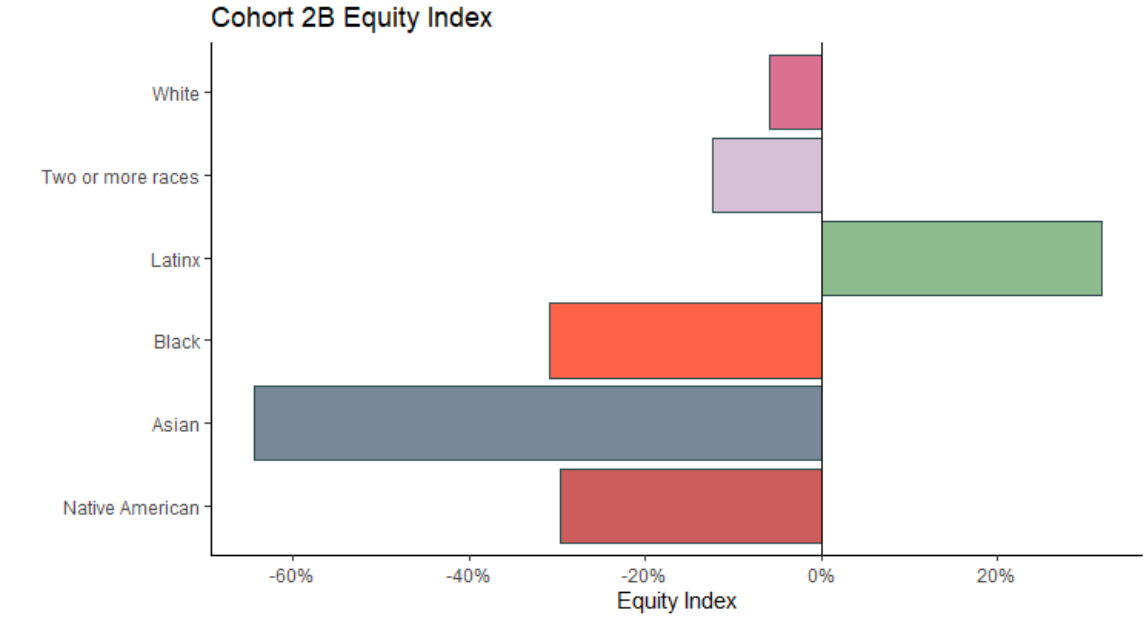

Figure 6

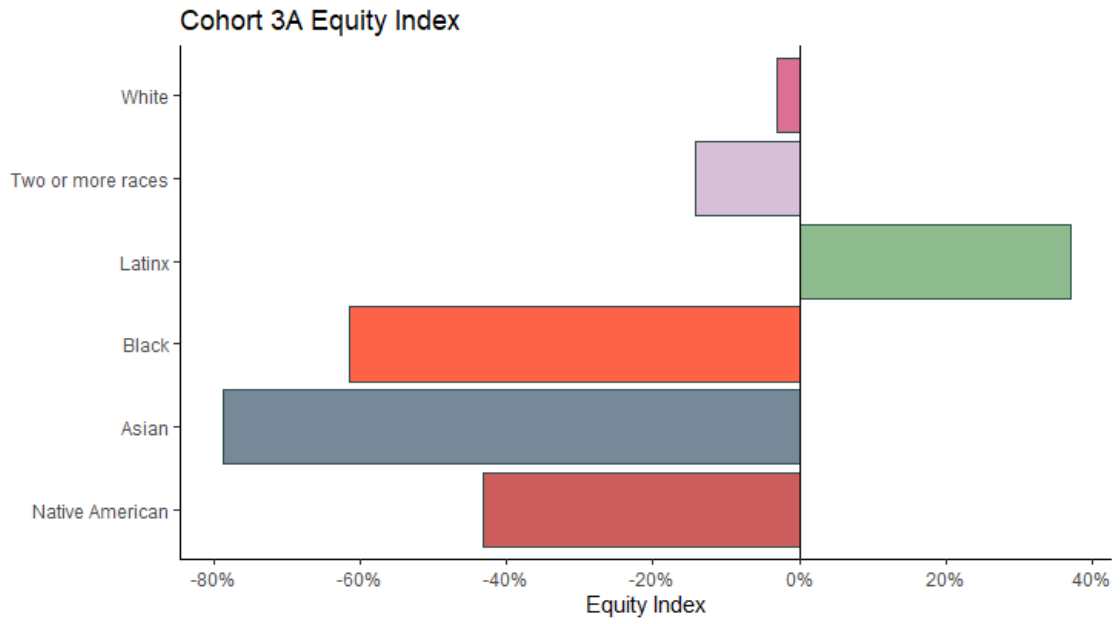

Figure 7

Both groups in Cohort 2 also showed similar patterns over the two years of data. Between Cohort 2A and 2B, overrepresentation of Latinx students increased by over 10% while the representation of Black and Native American students shifted back to equity. Cohort 3A showed representation similar to Cohort 2 groups.

IA Impact

Researchers considered a holistic approach to understanding the impact of IA on student outcomes, identifying contextual factors and confounding variables to include in statistical models and descriptive representations. Student enrollment patterns in math were important to understand to better understand the impact of IA on student performance. Table 3 shows student enrollment in IA based on results of the 8th grade Smarter Balanced Assessment (SBA). This summative assessment was developed by the states that administer it, was created with the input of teachers, and proposes to "be flexible, adaptive, and provide unparalleled support for diverse learners," (smarterbalanced.org, 2020). A student taking the SBA receives a Level score from 1 to 4, with a Level 4 suggesting proficiency at the student's assessed level. About half of the students that take IA score a L1 on their 8th grade SBA, while between 30% and 47% received a Level 2. In Cohort 3A, 15% of students earned a L3 on their 8th grade SBA, the highest rate of

any group of IA students. Very few Level 4 students from any cohort were enrolled in IA classes.

Table 3

8th Grade SBA	Cohort 1A	Cohort 1B	Cohort 1C	Cohort 2A	Cohort 2B	Cohort 3A
L1	62%	53%	46%	55%	58%	52%
L2	34%	37%	47%	39%	37%	28%
L3	4%	9%	4%	6%	4%	15%
L4	0%	1%	2%	1%	1%	4%

As described earlier in this report, to further understand the impact of IA on student math outcomes a comparison group of algebra students was created. These comparison students were randomly selected from a set of matched schools that are similar to IA schools in size, type (rural, suburban, or urban), and free or reduced lunch percentage. The comparison students were sampled from the matched schools through a stratified sampling technique to match IA students by 8th grade SBA level, ethnicity, and free or reduced-price lunch rate. Each cohort group has a different set of comparison schools and students that were sampled in this manner, allowing researchers to compare IA and Algebra student outcomes over time.

In this report, Cohort 1A students have four years of grades data (9th to 12th grades). Figure 8 compares the grades earned by IA students and comparison Algebra students over time. Researchers performed a Multivariate Analysis of Variance (MANOVA) to compare 9th, 10th, 11th, and 12th grade math GPA of Cohort 1A students with the comparison student group. Students who took math courses all four years of high school are included in this analysis. The MANOVA shows that there is a significant difference in grades at 9th grade and 12th grade between Cohort 1A Intensified Algebra students and the Cohort 1A comparison group. There is no significant difference at 10th and 11th grade.

Researchers performed a linear regression to ascertain the predictive value of 8th grade SBA, IA group membership, 9th grade math grade, 10th grade math grade, 11th grade math grade and 12th grade math grade on 10th grade SBA scores. Results show that 8th grade SBA scores and IA group membership were statistically significant, positive predictors of 10th grade SBA scores. The total R squared (practical effect size) of the model is .442, meaning 44% of the variance is accounted for with these variables.

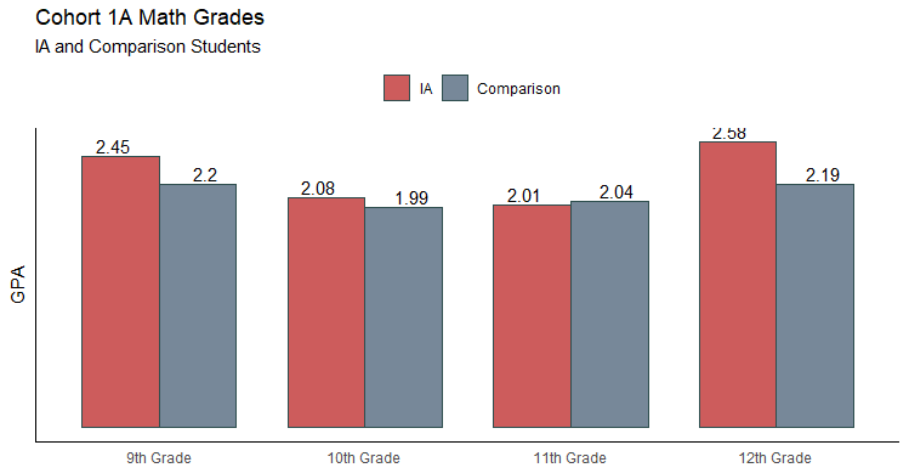

Figure 8

Cohort 1B students have three years of grade data (9th to 11th grades) represented in this report. Figure 9 shows math grades of IA students and comparison Algebra students over the three years of data available. Researchers performed a MANOVA to compare 9th and 10th grade math grades of Cohort 1B IA students to Cohort 1B comparison students. The MANOVA shows a statistically significant difference in Algebra grades between Cohort 1B IA students and Cohort 1B Comparison students. There was no statistically significant difference in 10th and 11th grade math courses.

Researchers performed a linear regression to ascertain the predictive value of 8th grade SBA, IA group membership, 9th grade math grades, 10th grade math grades, and 11th grade math grades on 10th grade SBA scores. Results show that 8th grade SBA scores and IA group membership were statistically significant, positive predictors of 10th grade SBA scores. The total R squared (practical effect size) of the model is .410, meaning 41% of the variance is accounted for with these variables.

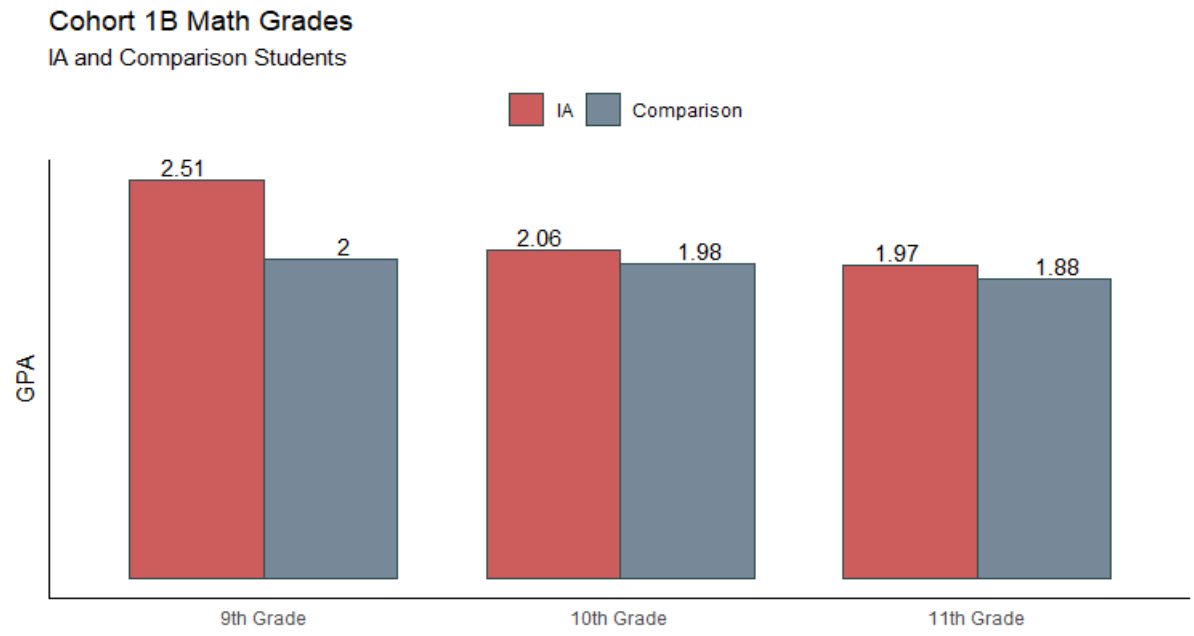

Figure 9

Cohort 1C students have two years of grade data. Figure 10 shows math grades of Cohort 1C IA students and Cohort 1C comparison Algebra students over time. Researchers performed a MANOVA to compare 9th and 10th grade math grades of Cohort 1C IA students to Cohort 1C comparison students. The MANOVA shows a statistically significant difference in Algebra grades between Cohort 1C IA students and Cohort 1C Comparison students. There was no statistically significant difference in 10th grade math courses.

Researchers performed a linear regression to ascertain the predictive value of 8th grade SBA, IA group membership, 9th grade math grades, and 10th grade math grades on 10th grade SBA scores. Results show that 8th grade SBA scores and IA group membership were statistically significant, positive predictors of 10th grade SBA scores. The total R squared (practical effect) of the model is .393, meaning 39% of the variance is accounted for with these variables.

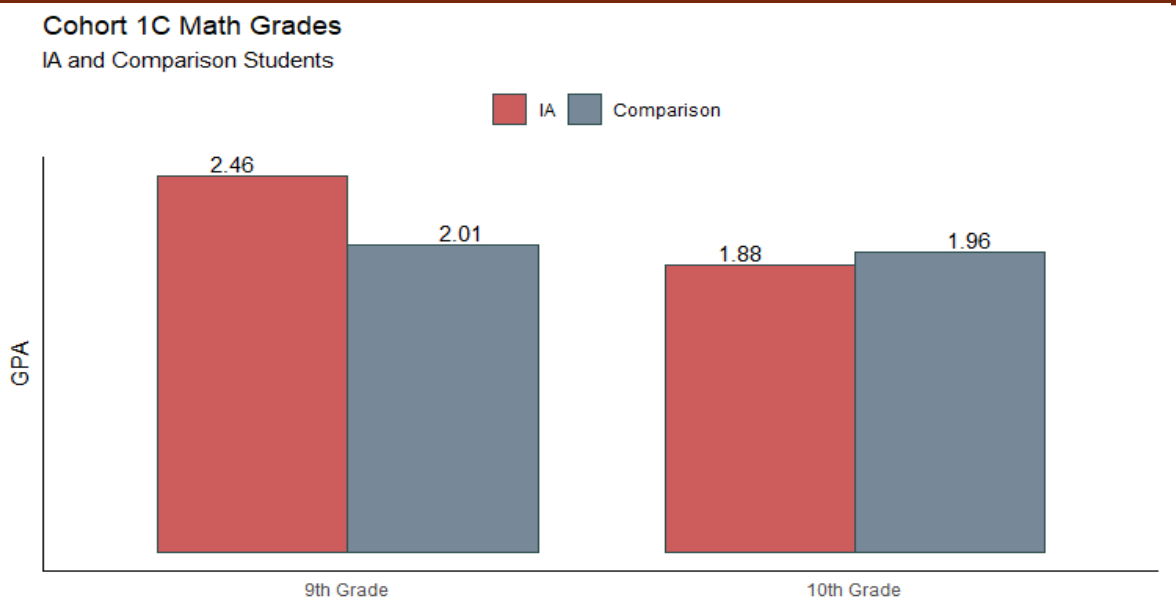

Figure 10

Cohort 2A students have two of math grades data (Figure 11). Researchers performed a MANOVA to compare 9th and 10th grade math grades of Cohort 2A IA students to Cohort 2A comparison students. The MANOVA shows a statistically significant difference in Algebra grades between Cohort 2A IA students and Cohort 2A Comparison students. There was no statistically significant difference in 10th grade math courses.

Researchers performed a linear regression to ascertain the predictive value of 8th grade SBA, IA group membership, 9th grade math grades, and 10th grade math grades on 10th grade SBA scores. Results show that 8th grade SBA scores, IA group membership, 9th grade math grades, and 10th grade math grades were all statistically significant, positive predictors of 10th grade SBA scores. The total R squared (practical effect) of the model is .550, meaning 55% of the variance is accounted for with these variables.

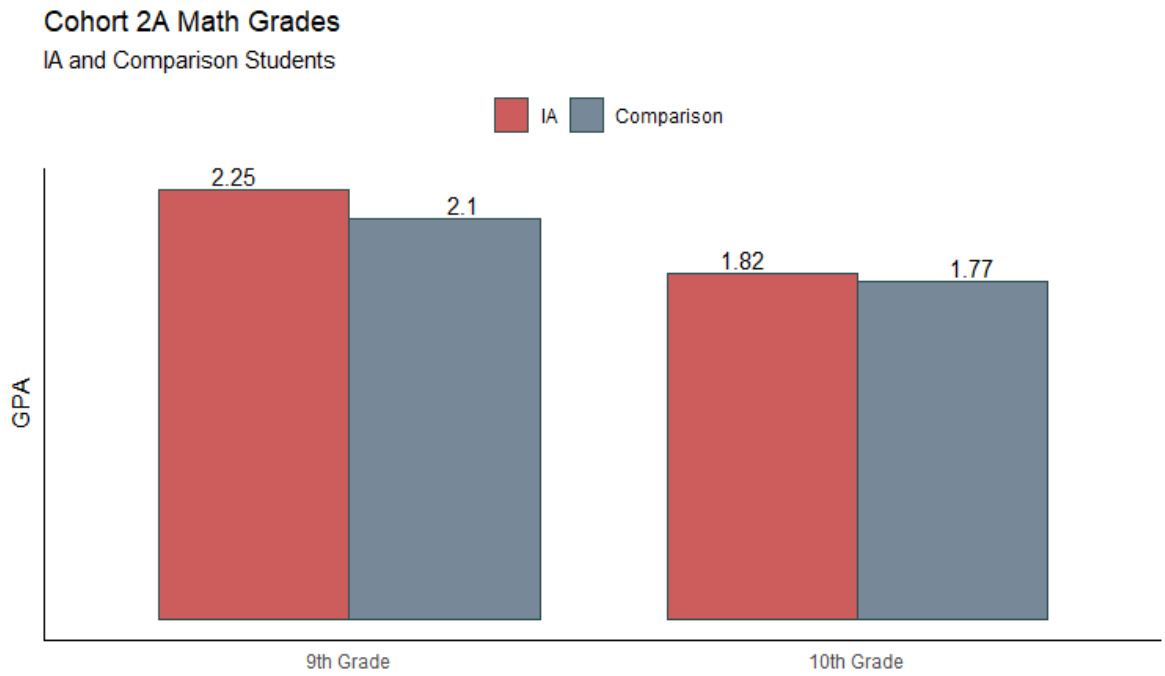

Figure 11

Cohort 2B students had one year of math grades data (Figure 12). Researchers performed an analysis of variance (ANOVA) to compare 9th grade math grades of Cohort 2B IA students to Cohort 2B comparison students. The ANOVA showed a statistically significant difference in Algebra grades between Cohort 2B IA students and Cohort 2B Comparison students.

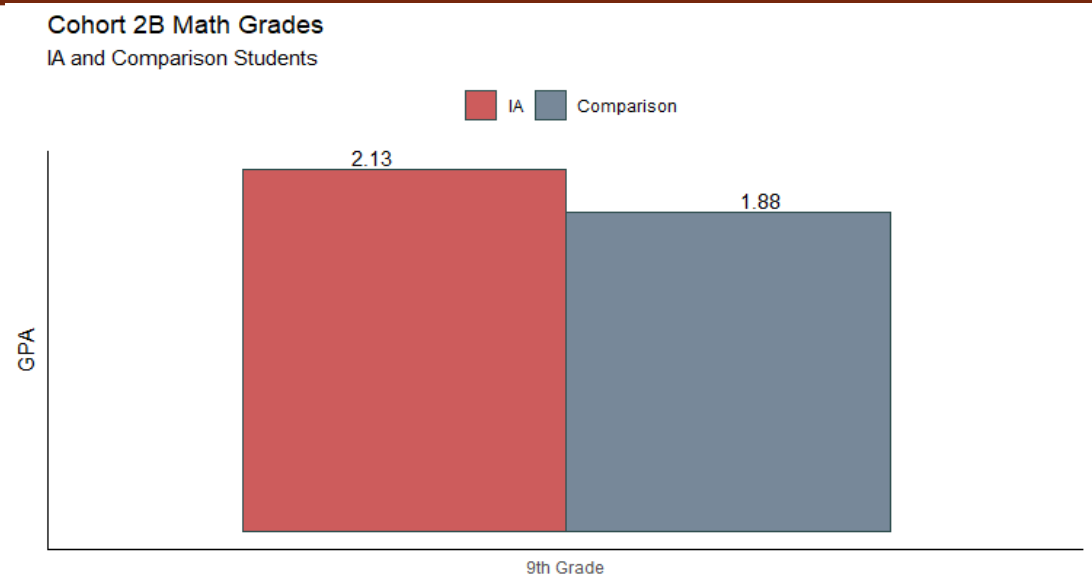

Figure 12

Cohort 3A students had one year of math grades data (Figure 13). Researchers performed an analysis of variance (ANOVA) to compare 9th grade math grades of Cohort 3A IA students to Cohort 3A comparison students. The ANOVA showed a statistically significant difference in Algebra grades between Cohort 3A IA students and Cohort 3A Comparison students.

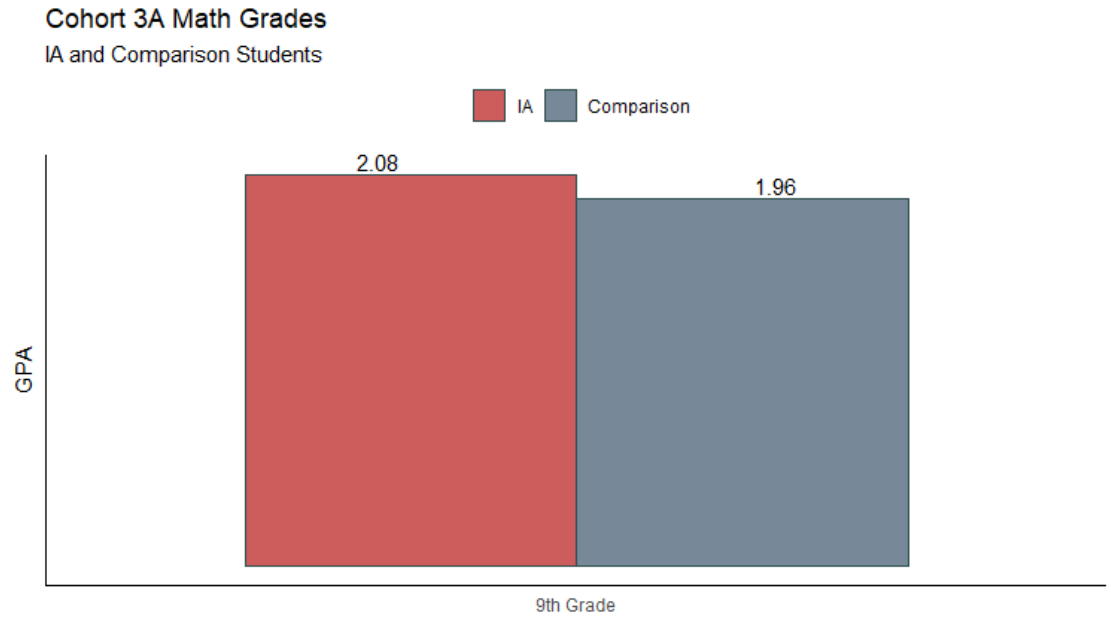

Figure 13

Summary

The 2018-2019 IA data has revealed several trends over time and across many different groups of students. This provided researchers a robust sample of students in which to analyze models. In all cohort groups, IA students had statistically significant higher grades than comparison Algebra students from the matched sample populations. This effect did not always carry over to subsequent years of math course grades. In addition, IA membership in cohorts 1A, 1B, 1C, and 2A was predictive of higher 10^{th} grade SBA scores. These patterns, along with evidence from the qualitative data, suggest that the students are responding positively to the unique curriculum, professional development, and pedagogy of IA courses. Membership in IA shows better outcomes for students when compared to similar students in matched comparison schools. However, once they move on to traditional math courses, which do not cultivate the same environment as IA courses, their performance regresses back to that of the comparison group.

These findings can support funders, district leaders, teachers, and program administrators as they discuss the best ways to implement courses that have an impact on student outcomes. Specifically, when considered in conjunction with the qualitative evidence supporting IA, it becomes important to engage in discussions about what characteristics of the IA curriculum are having the greatest impact, and how those features could be replicated to support students once they transition from the IA course into higher level math. The pedagogical habits that come from IA supports and professional development can be used in other math courses, with IA teachers serving as teacher leaders in their buildings.

Bridge to College

Math and English/Language Arts

The State Board for Community and Technical Colleges created and implemented senior year college readiness math and English courses that are designed to align with the Common Core State Standards and with pre-college courses in higher education. The courses were developed collaboratively with high school and college faculties. Seniors who complete the transition courses with a B or better will be able to move directly to college level math and English courses in college without remediation or additional placement testing.

Twenty-five schools piloted the Senior Year Transition Courses during the 2014-2015 school year, with additional sites added during each year of implementation. A complete list of current schools offering BtC (BtC) courses is included in Appendix C. The goal of the BtC strategy is to improve the college readiness of students graduating high school, to develop college to school partnerships, to reinforce transcript placement efforts with the smarter balanced assessment, and to provide rigorous alternatives to algebra 2 as the third-year math course. Researchers gathered data from the ERDC to track longitudinal math and English course taking and academic outcomes for BtC students.

Schools with the largest population of BtC students were identified during the data analysis process. As shown in Figure 14 and Figure 15, these schools have seen considerable drops in the percentage of students taking pre-college courses at 2-year CTC's in the year after high school graduation. Though each school started above the state average in 2014, their rates of pre-college course taking are now at or near the state average, suggesting that the inclusion of BtC may be helping to decrease rates of pre-college course taking at a faster pace.

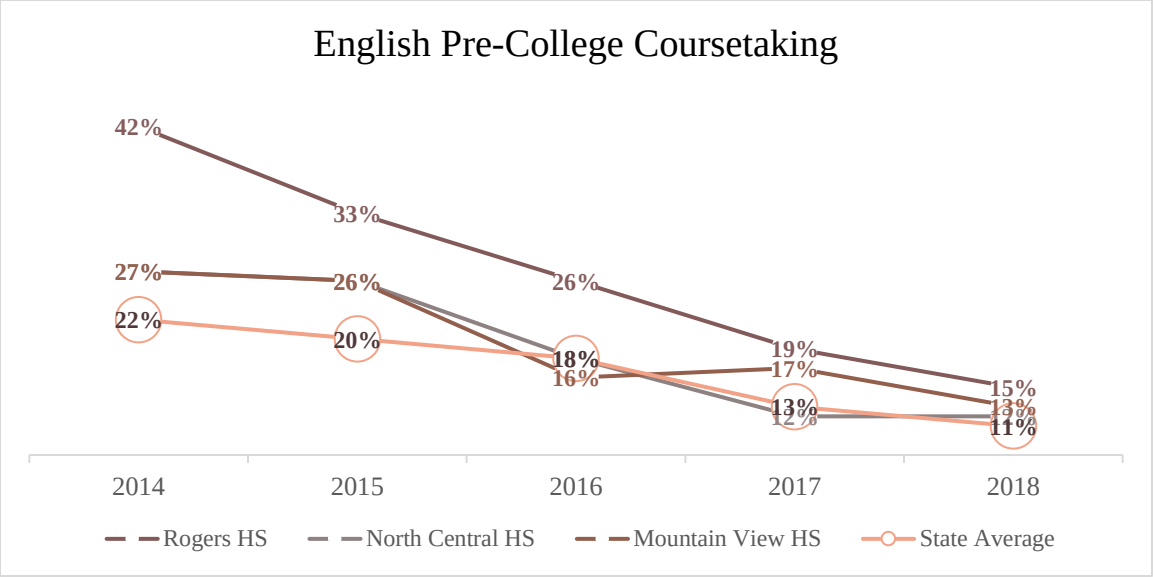

Figure 14

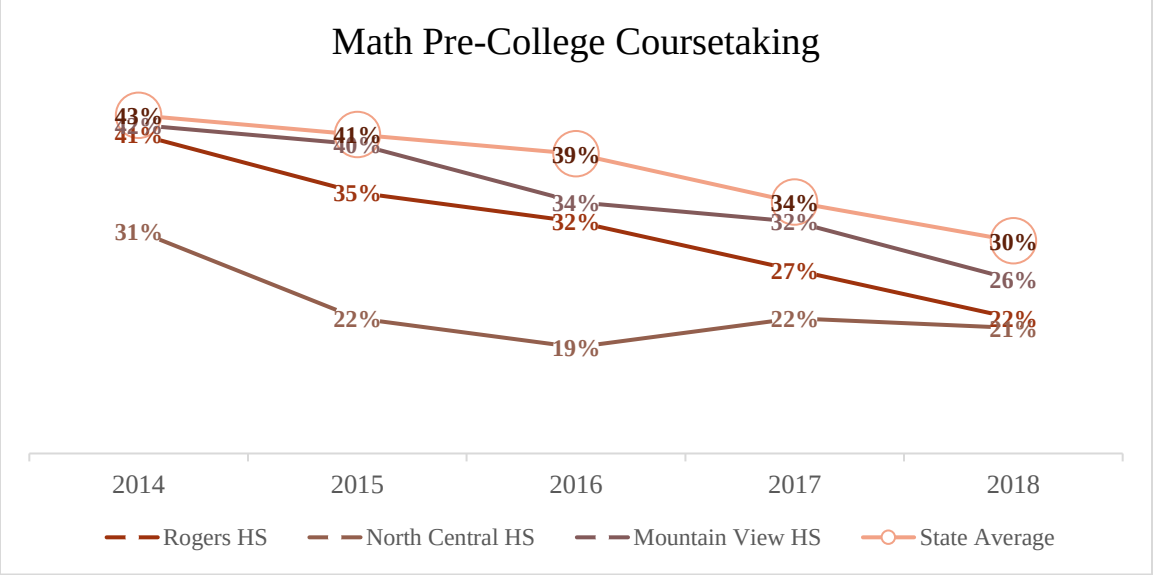

Figure 15

While these charts do not provide any statistically significant evidence of a relationship between BtC course taking and a decrease in pre-college course taking, it is relevant to look at the trends and formulate questions as to what might be happening in the schools to help better prepare seniors for college level course work after graduation.

Methodology

During the initial phase of the BtC evaluation, researchers conducted a mixed-methods study to explore implementation and impact of the program on student outcomes. Fifteen BtC schools were selected for site visitations through a stratified sampling process. Researchers divided all participating schools into groups geographically; (Eastern and Western Washington, urban and rural communities), and then randomly selected schools from each region. In spring 2016 and 2017, researchers interviewed school administrators, teachers, and students at each school. Additionally, researchers conducted observations of BtC English language arts and Math classrooms. Qualitative data results from this initial phase of the BtC evaluation can be found on College Spark Washington's website (www.collegespark.org).

In addition to qualitative data collected at the beginning of this initiative, quantitative data collection has continued annually since 2016. Researchers have worked with the Educational Research and Data Center (ERDC) to collect k-12 and postsecondary data for all seniors taking BtC English and/or math courses across the state. These data points include demographic information, standardized assessment scores, math grades in BtC, failure rates, and postsecondary course taking and achievement. This data is then analyzed to understand patterns of math engagement and success related to participation in BtC courses.

Evidence of Impact

Researchers worked with the ERDC to collect quantitative data on BtC student outcomes. For Cohort 1 BtC students (12th graders in 2015-2016), researchers were able to track and report on progress into students' second year of college. For students that were 12th graders in 2016-2017 (identified as Cohort 2), researchers were able to report on progress into students' first year of college. For Cohort 3 BtC students, (12th graders in 2017-2018), researchers analyzed BtC course grades and high school outcomes. For each year of data reporting, BERC researchers will use the most available ERDC data for analysis and will update the report when more data is made available.

Demographics

Who is taking Bridge to College courses?

Table 4Table 1 and

Table 5Table 2 show the demographic breakdown of each cohort of BtC English and math, respectively. In both BtC courses, White and Hispanic/Latino students consistently represent the largest populations of students. Collectively, they represent almost 80% of the total BtC population in each course.

Table 4. BtC English Demographics

Ethnicity	Cohort 1	Cohort 2	Cohort 3	Cohort 4
American Indian/Alaska Native	2.0%	1.7%	2.2%	2.6%
Asian	4.9%	3.7%	3.9%	3.8%
Black/African American	5.0%	5.6%	5.1%	4.7%
Hispanic/Latino	19.9%	27.2%	31.3%	32.4%
Native Hawaiian/Other Pacific Islander	2.2%	1.5%	1.5%	3.6%
Two or more races	7.0%	7.0%	6.6%	6.4%
White	59.0%	53.3%	49.4%	46.5%

Table 5. BtC Math Demographics

Ethnicity	Cohort 1	Cohort 2	Cohort 3	Cohort 4
American Indian/Alaska Native	2.4%	1.5 %	1.0%	1.8%
Asian	5.1%	4.3%	4.3%	5.1%
Black/African American	5.5%	8.8%	8.8%	9.7%
Hispanic/Latino	26.1%	27.1%	27.8%	28.4%
Native Hawaiian/Other Pacific Islander	1.1%	1.2%	2.3%	2.1%
Two or more races	5.7%	6.7%	8.4%	7.1%
White	54.0%	50.4%	47.4%	45.6%

Figure 16 and Figure 17 show the breakdown of BtC English and math students by ELA and math Smarter Balance Assessment (SBA) performance level. A student taking the SBA receives a Level score from 1 to 4, with a Level 4 suggesting proficiency at the student's assessed level. Approximately 40% of BtC English students earned an L2 on the ELA SBA and about 30% earned an L3, representing most BtC English students. Most of the BtC math students, however, earned an L1 or L2 on the math SBA.

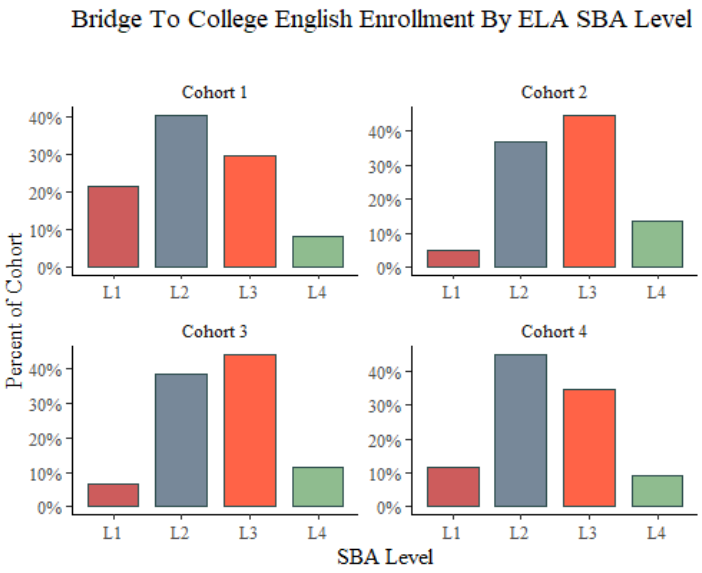

Figure 16

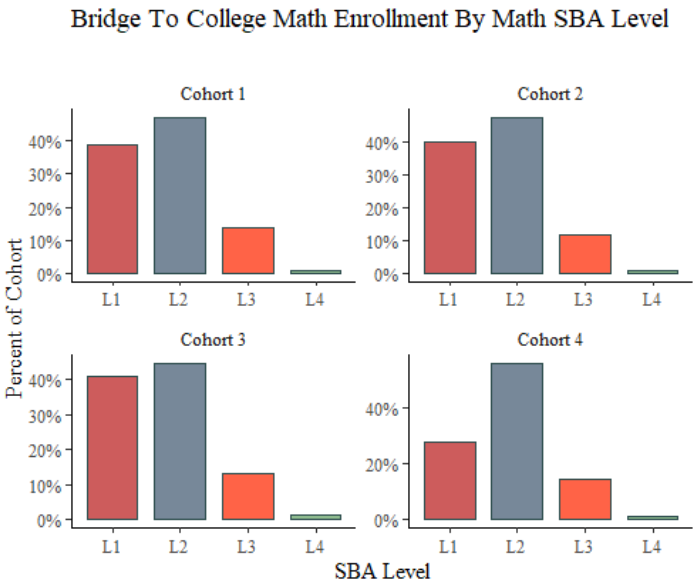

Figure 17

Error! Not a valid bookmark self-reference. and Table 7 show the number of total BtC students, the number of BtC students earning a B or Better, and the percent of students that earned a B or better in each BtC course. Between 70-75% of BtC English students earned a B or

better while between 74-76% of BtC math students earned a B or better. These percentages show that the majority of students taking BtC are eligible for placement into college level courses.

Table 6

Group	Total Bridge English Students	Number of Students Earning B or Better in Bridge English	Percentage of Students Earning B or Better in Bridge English
Cohort 1	1887	1376	72%
Cohort 2	2165	1554	72%
Cohort 3	2244	1683	75%
Cohort 4	2791	1954	70%

Table 7

Group	Total Bridge Math Students	Number of Students Earning B or Better in Bridge Math	Percentage of Students Earning B or Better in Bridge Math
Cohort 1	1055	803	76%
Cohort 2	1768	1327	75%
Cohort 3	2055	1558	76%
Cohort 4	4587	3410	74%

Table 8 and Table 9 display the number of BtC English and math students that attended a postsecondary institution by the type of institution (University or CTC) and cohort. Across all three cohorts and both classes, far more students enrolled in a CTC than a University. The number of BtC English and math students attending a postsecondary institution rose greatly between Cohort 1 and 2 but dropped slightly during Cohort 3.

Table 8. BtC English Postsecondary Enrollment

Institution	Cohort 1	Cohort 2	Cohort 3
University (4 year)	175	257	207
CTC (2 year)	398	566	460

Table 9. BtC Math Postsecondary Enrollment

Institution	Cohort 1	Cohort 2	Cohort 3
University (4 year)	190	243	224
CTC (2 year)	360	703	617

Figure 18 and Figure 19 show postsecondary enrollment of BtC English and Math students broken down by SBA Level for CTC and University-bound students. A higher proportion of BtC English students passing the SBA (earning an L3 or L4) attended University than CTC across all three cohort groups. A slightly higher proportion of BtC Math students passing the math SBA attended University than CTC but over 75% of BtC Math students attending a postsecondary institution earned an L1 or L2.

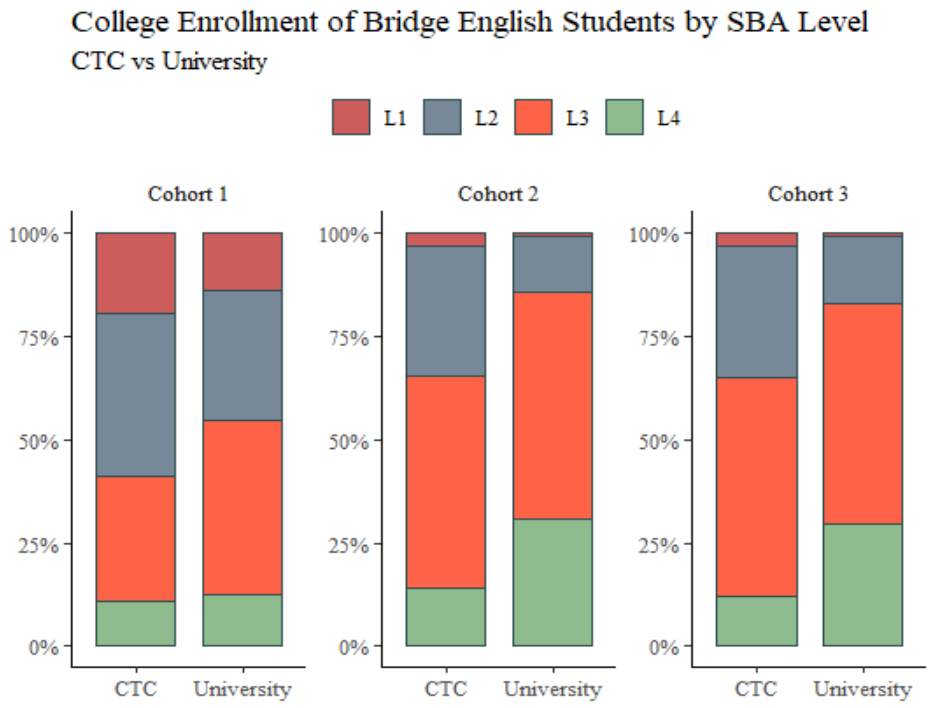

Figure 18

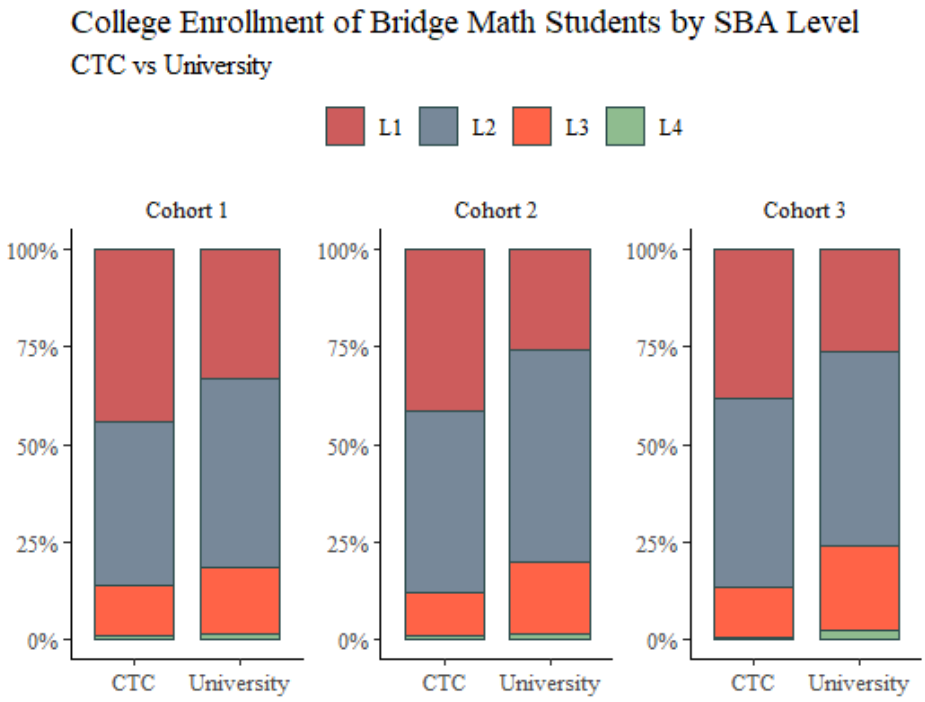

Figure 19

Figure 20 and Figure 21 display an equity index of BtC English and math students enrolling in a CTC. These equity indices show the ethnic representation of students attending a CTC proportional to the population of students that took BtC in high school. The broken line marks equal representation at a CTC. In other words, the proportion of an ethnic group in BtC high school courses would be at the dotted line if the same proportion of students in that ethnic group attended a CTC. Across all three cohorts, Asian and Native students are overrepresented in CTCs, meaning that a higher proportion go on to a secondary institution than take BtC in high school. However, these groups make up a small percentage of students taking BtC in high school, so that even a small number of students enrolling or not enrolling represent large changes in the proportion. Hispanic/Latino and White students make up the bulk of BtC students in high school. The equity indexes show that their representation hovers around 100%, meaning that

both groups of students go on to a postsecondary institution in the same proportions that take the course in high school, suggesting equity of access.

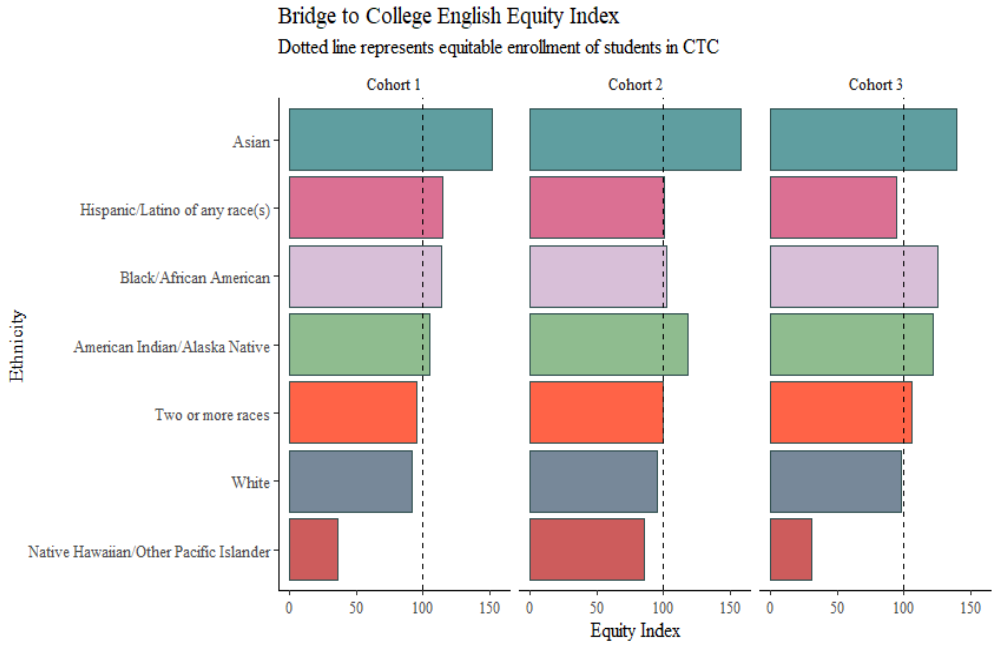

Figure 20

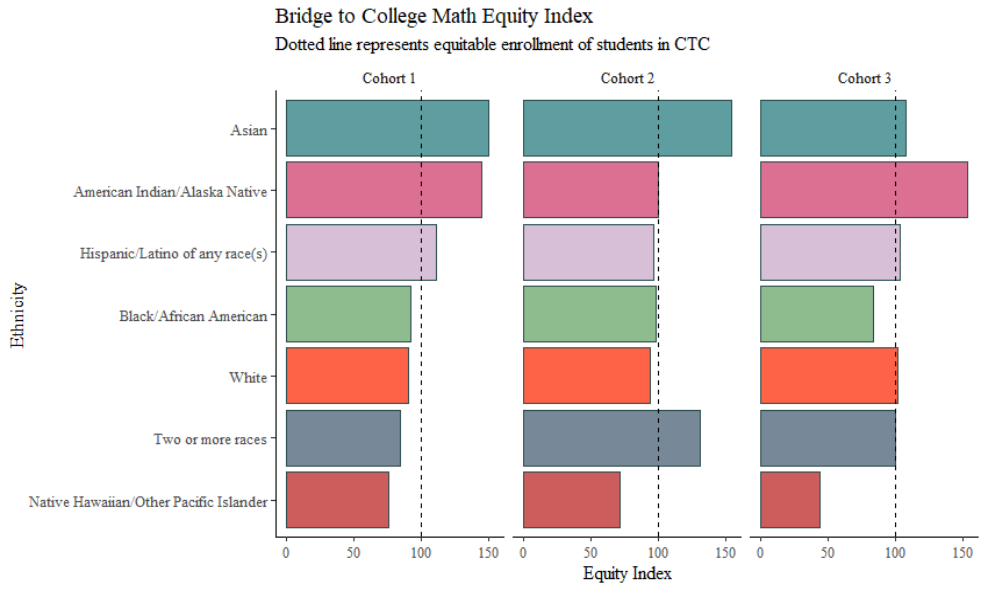

Figure 21

What level of courses did BtC students take during their first term at a CTC?

Figure 22 compares English course taking patterns of BtC and non-BtC (L1 and L2) students in their first CTC term. Across all three cohorts, BtC students took college level English courses at a higher rate than the comparison non-BtC students. Figure 23 compares English course taking patterns of B or better BtC and C or lower BtC students in their first CTC term. BtC B or better students took college level English courses at a higher rate than C or lower BtC students. In Cohort 2 and 3, a higher proportion of C or lower BtC students did not take an English course during their first term.

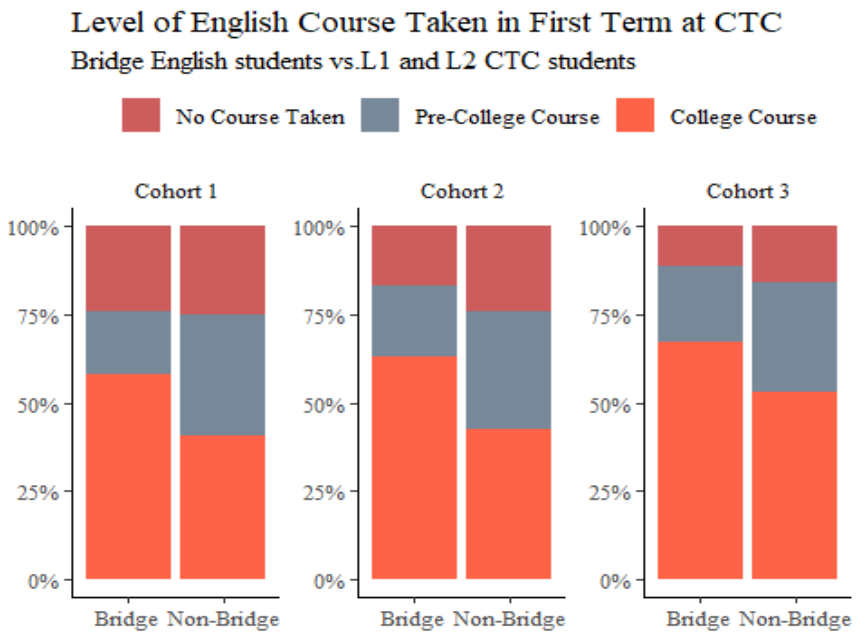

Figure 22

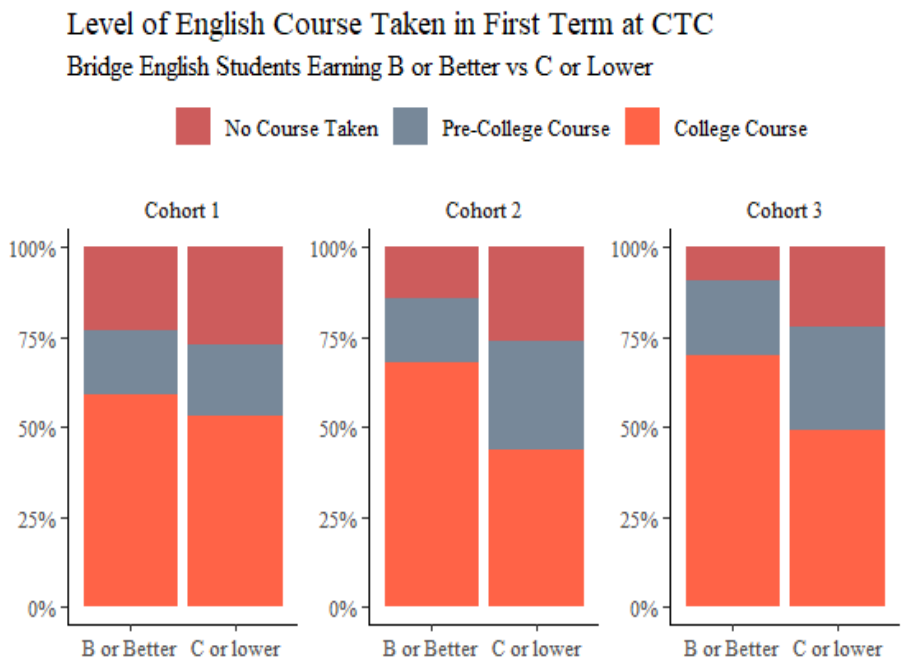

Figure 23

Figure 24 compares math course taking patterns of BtC and non-BtC (L1 and L2) students in their first CTC term. BtC students took a college level math course at a slightly higher rate than non-BtC students scoring an L1 or L2 on the math SBA. However, at least half of each group of students took a pre-college math course in their first term and over a quarter did not take a math course at all. This pattern persisted throughout the cohort groups, suggesting that very few CTC students take college level math courses during their first term at a CTC.

Figure 25 compares math course taking patterns of B or better BtC and C or lower BtC students in their first CTC term. B or better students qualify for a college level math course upon enrollment to a CTC or university but only about 25% of B or better students that enrolled in a CTC took a college level math course during their first term. Though this was much higher than C or lower students, the vast majority of B or better students did not take a college level math course even though they qualified.

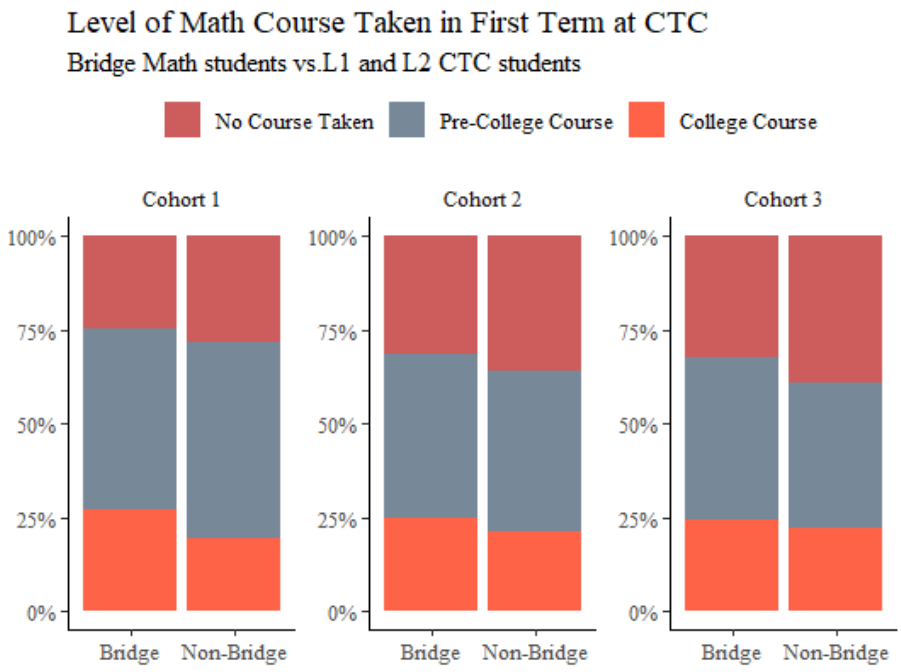

Figure 24

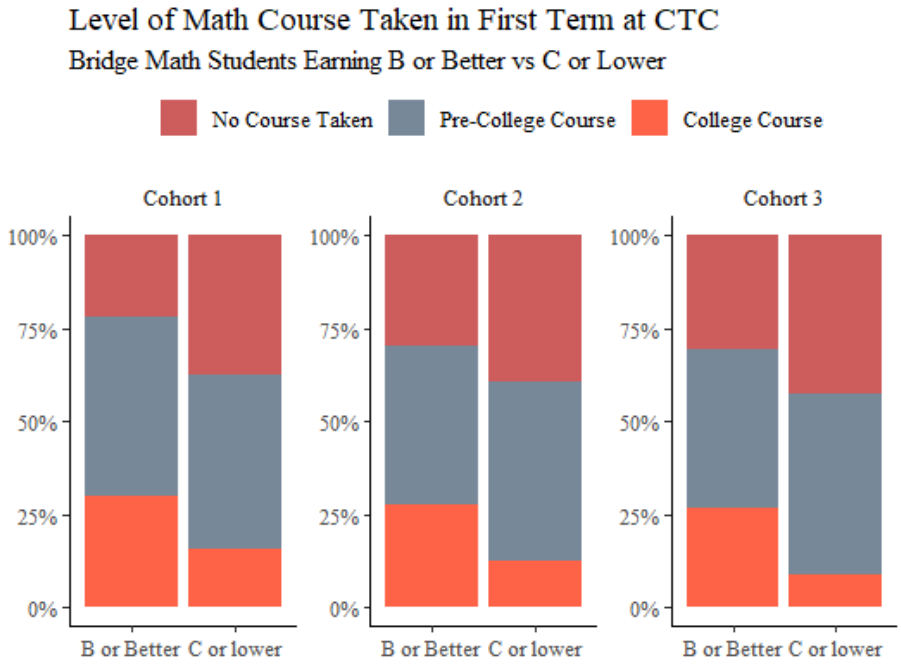

Figure 25

The course taking data of BtC B or better students was further disaggregated by ethnicity to ascertain any inequities in course taking during their first term at a CTC (Figure 26 and Figure 27). White students took college level English courses at a slightly higher rate than Hispanic/Latino students, which are the two largest ethnic groups represented in the study. A larger percentage of White students did not take any English courses during their first term at CTC than Hispanic/Latino students, who took more pre-college level English courses than White students. White BtC B or better students also took college level math courses at a higher rate than Hispanic/Latino BtC B or better students, but well below 50% of these students took a college level math course. More Hispanic/Latino students took a math course during their first term at CTC while a little over 25% of White BtC B or better students did not take a math course.

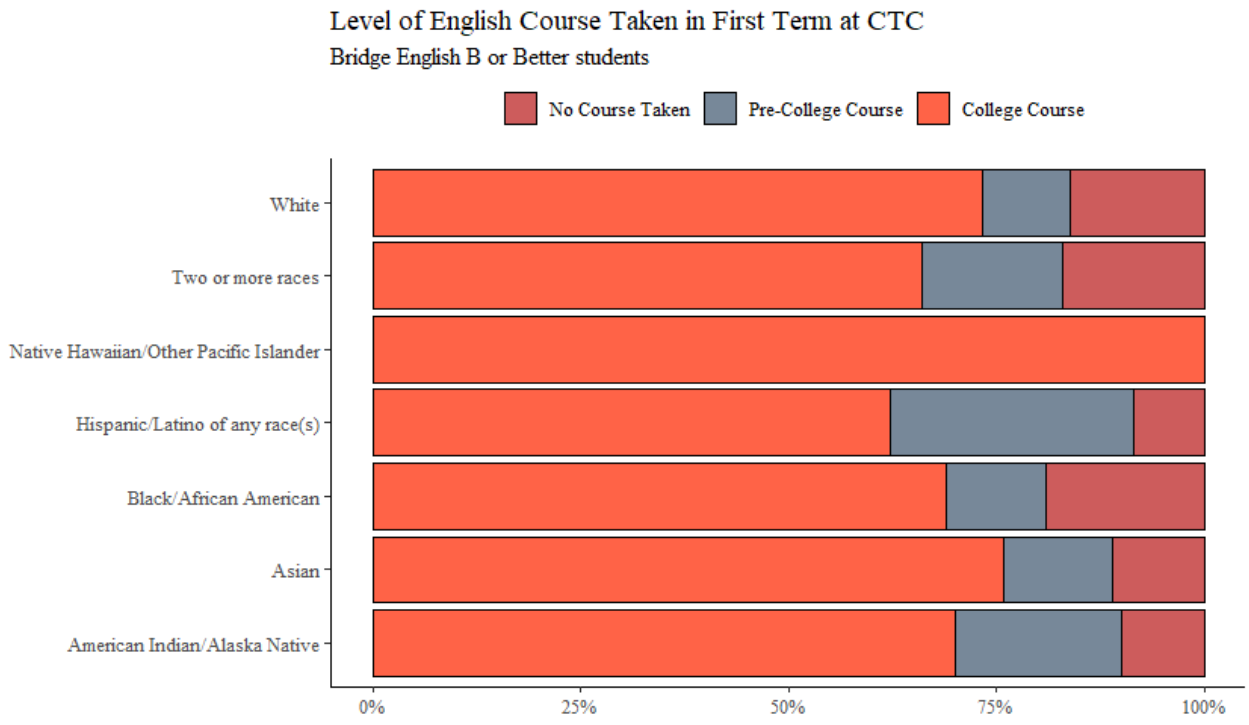

Figure 26

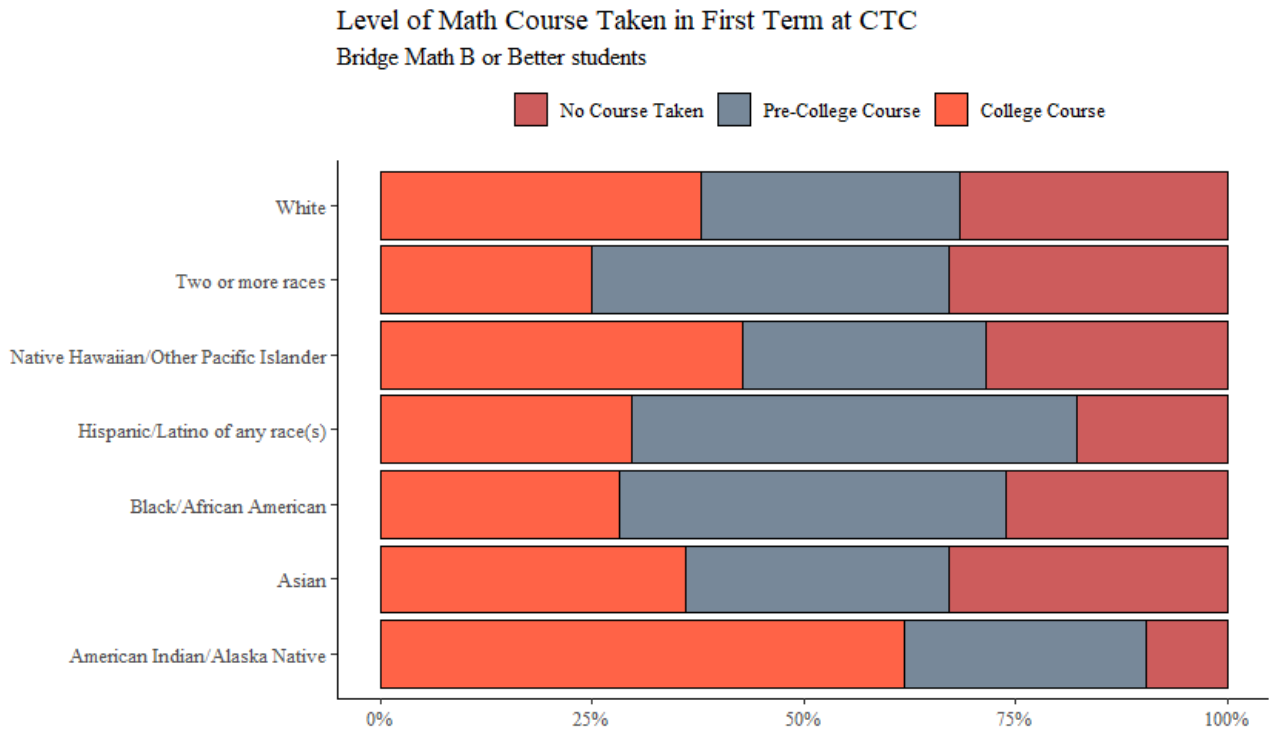

Figure 27

How did BtC students perform in math/English courses during their first term at a CTC?

Researchers also analyzed the English and math grades that CTC students earned during their first term in college. Further charts and analysis of grades are included in Appendix D. Figure 28 shows the mean English grades earned by BtC and non-BtC L1 and L2 CTC students taking a college level English course during their first term. Across all three cohorts, BtC students earned slightly higher grades than their non-BtC classmates. Table 10 shows the group sizes for this comparison.

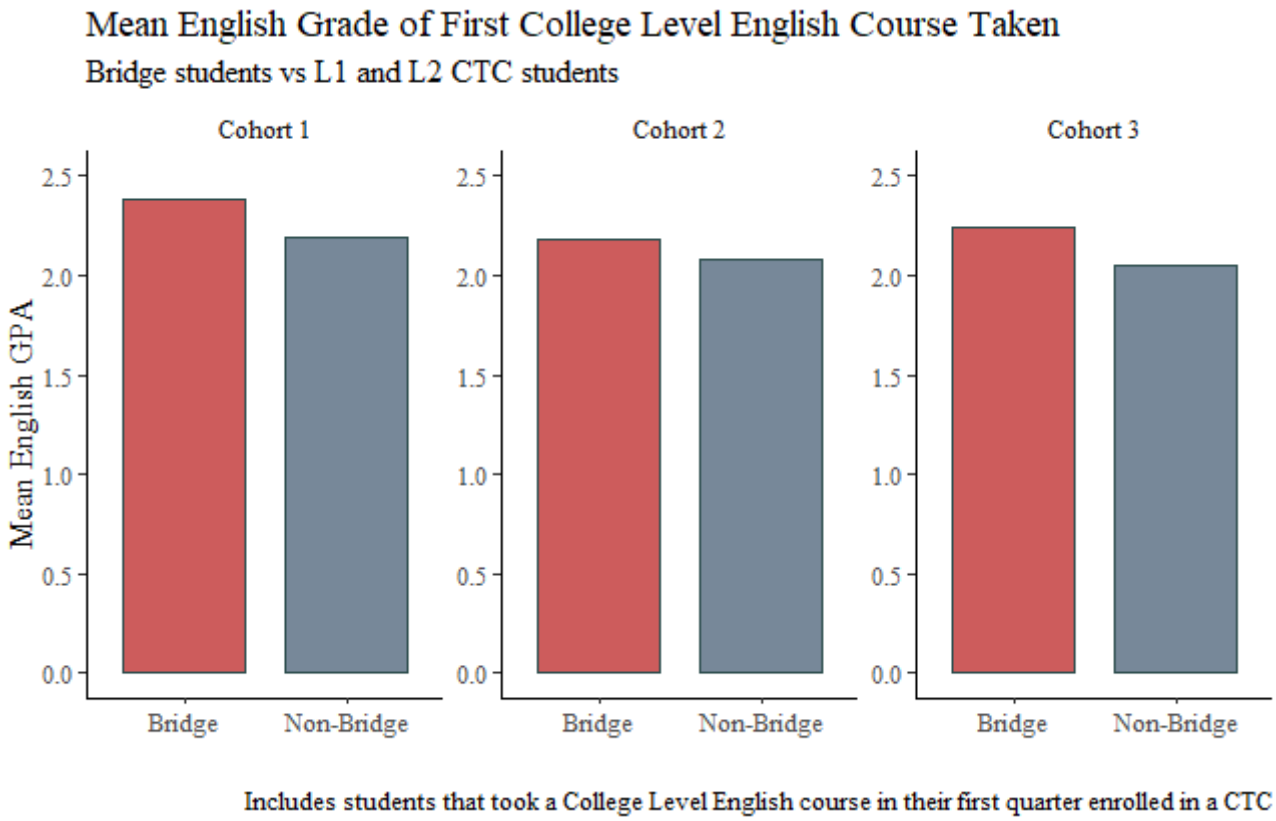

Figure 28

Table 10. Group sizes for Figure 28

Group	Cohort 1	Cohort 2	Cohort 3
Bridge	166	247	202
Non-Bridge	826	541	609

Researchers compared the mean college level math grades of BtC and non-BtC L1 and L2 students in their first term at a CTC across all three cohorts (Figure 29). BtC students in Cohort 1 and 2 earned higher grades than their non-BtC classmates while BtC students and non-BtC students earned similar grades in cohort 3. Table 11 shows the group sizes of this comparison, which were uneven due to the lack of matched comparison groups.

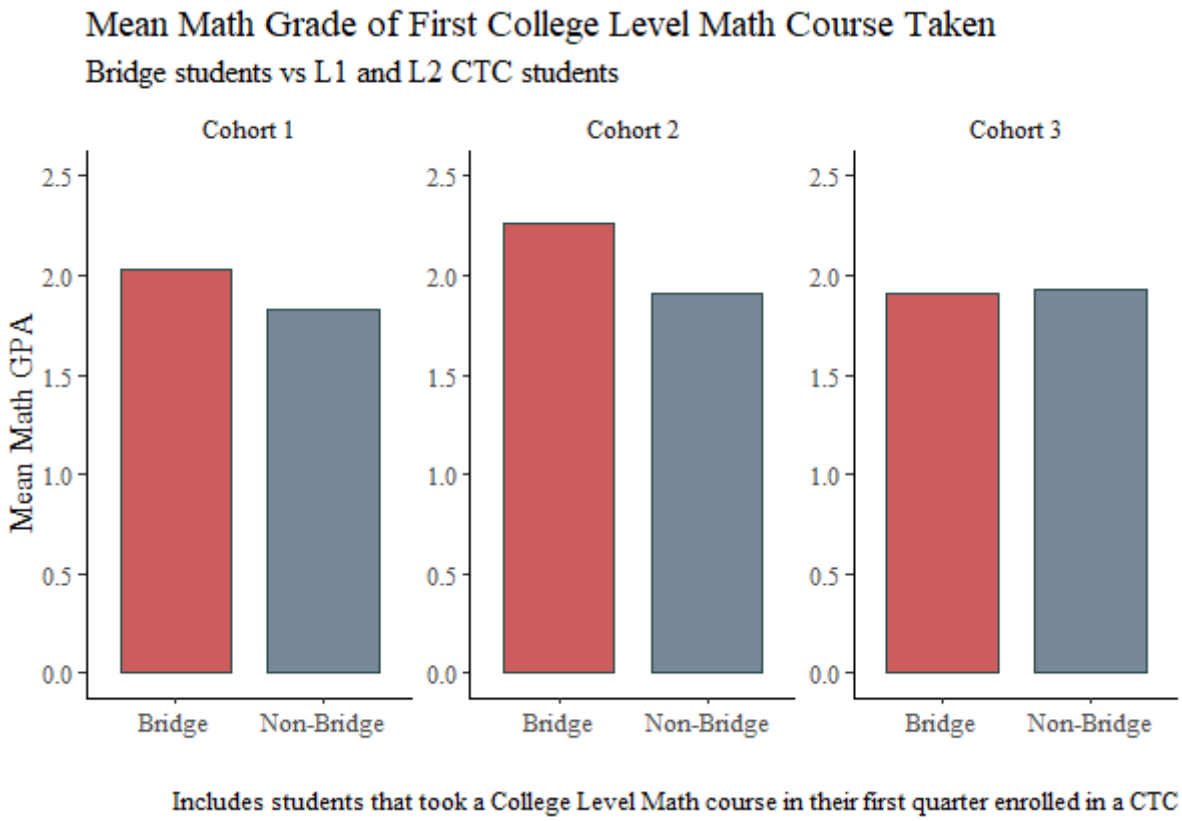

Figure 29

Table 11. Group sizes for Figure 29

Group	Cohort 1	Cohort 2	Cohort 3
Bridge	67	105	73
Non-Bridge	590	808	659

Figure 30 compares the mean pre-college level math grades between BtC and non-BtC L1 and L2 students across all three cohorts. Non-BtC students earned lightly higher grades than BtC students across all three cohorts. Table 12 shows the group sizes for this analysis.

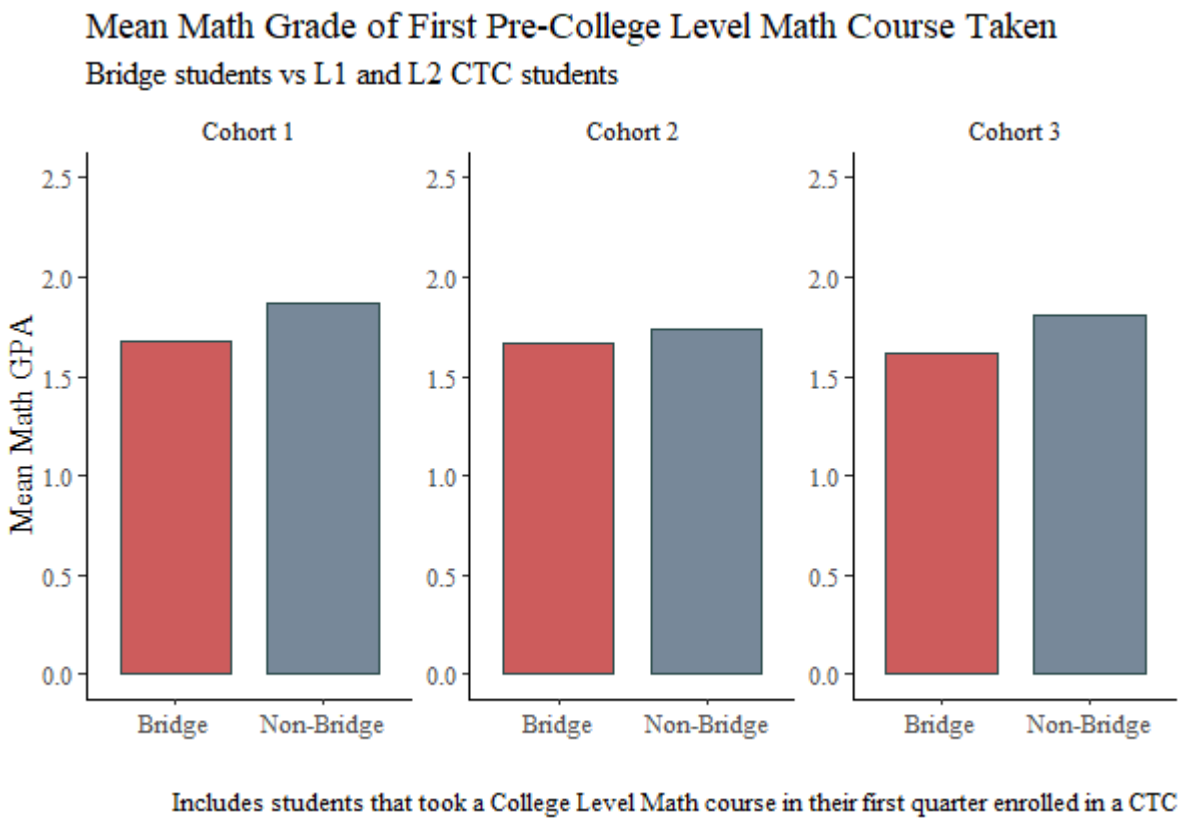

Figure 30

Table 12. Group sizes for Figure 30

Group	Cohort 1	Cohort 2	Cohort 3
Bridge	132	223	164
Non-Bridge	1787	1813	1260

Researchers also analyzed the number of college level credits earned in English and math courses by BtC B or better students and non-BtC students for all three cohorts. Cohort 1 and 2 data reflect two years of CTC data while cohort 3 reflects one year of data. Comparisons were made with non-BtC L1 and L2 students to better reflect the similarities with BtC B or better students.

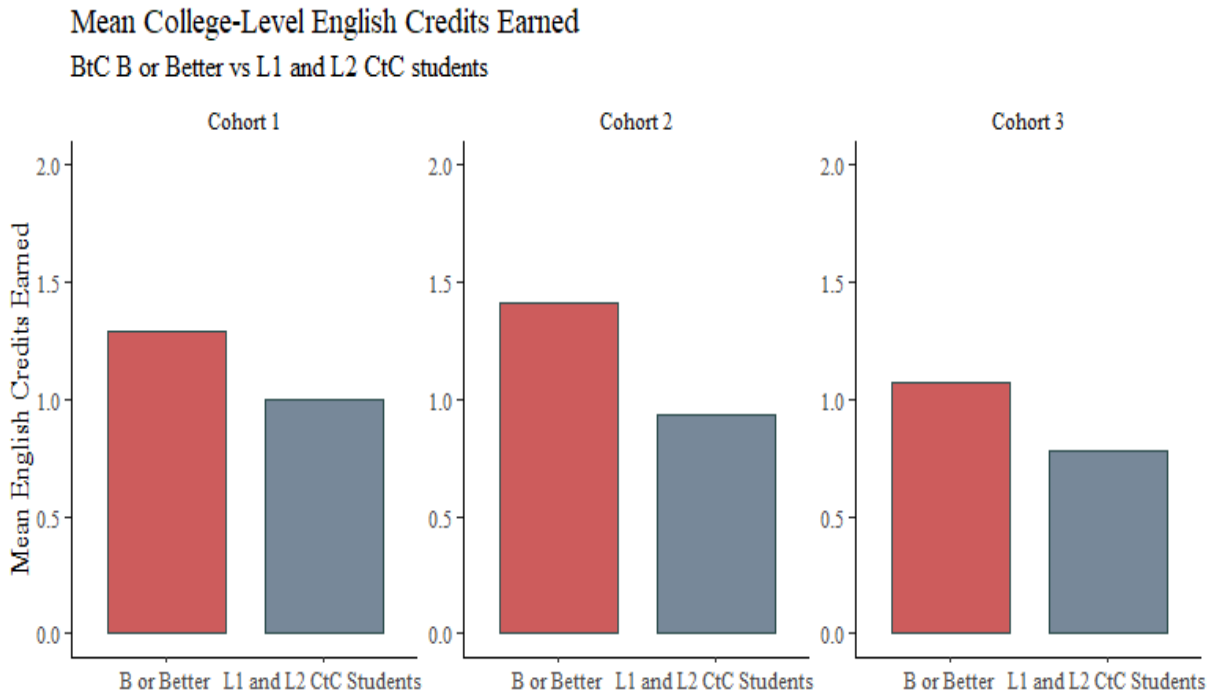

Figure 31

Figure 31 compares the number of college level English credits earned by BtC B or better students and non-BtC and L1 and L2 students by cohort. Across all three cohorts, BtC B or better students earned between a quarter to half a credit more than non-BtC students. Table 13 shows the group sizes for this analysis.

Table 13. Group sizes for Figure 31

Group	Cohort 1	Cohort 2	Cohort 3
B or Better Bridge	191	311	245
L1 and L2 CtC	2587	1579	1336

Figure 32 compares the number of college level math credits earned by BtC B or better students and non-BtC and L1 and L2 students by cohort. Across all three cohorts, BtC B or better students earned slightly more college level math credit than non-BtC students. Data from Cohort 3 shows that in the first year BtC B or better students earn about the same college math credit than non-BtC L1 and L2 students. Table 14 shows the group sizes for this analysis.

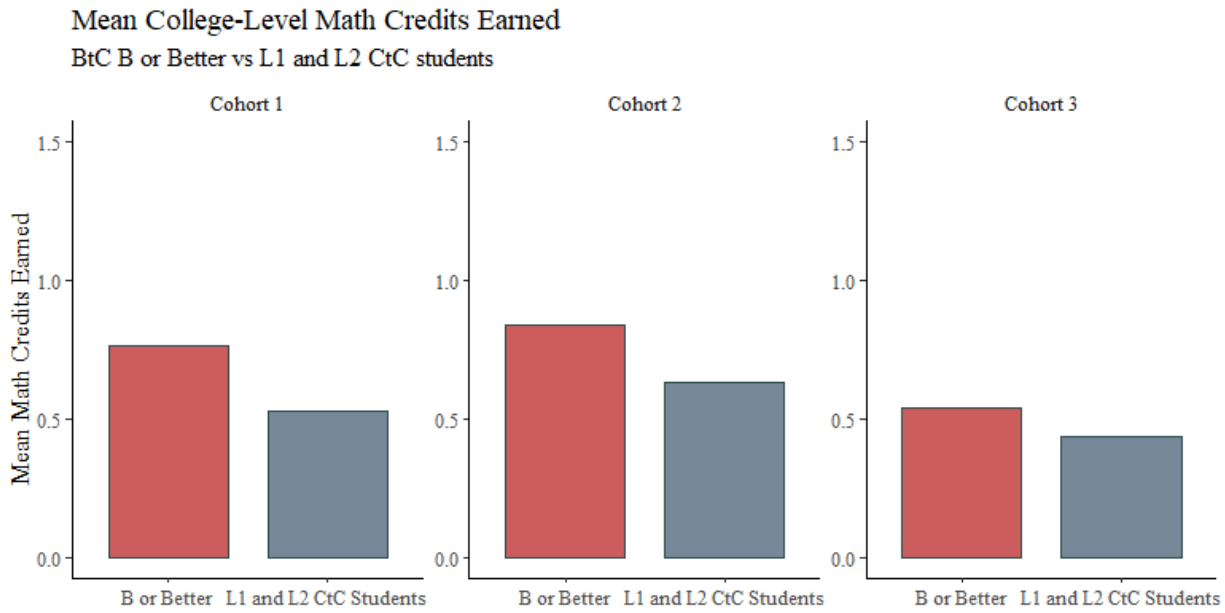

Figure 32

Table 14. Group sizes for Figure 32

Group	Cohort 1	Cohort 2	Cohort 3
B or Better	161	299	248
L1 and L2 CtC	3447	4129	3098

Quantitative Data Summary

Since the beginning of the BtC initiative the number of schools offering BtC math and English courses has increased significantly. The demographic characteristics of BtC courses have remained relatively stable, however, with mostly White and Hispanic students enrolling in BtC math and English. The ethnicity distribution of BtC students is proportional to the school populations, suggesting that there is widespread and equitable access to the course for all students across the state.

The majority of BtC English students earned an L2 or L3 on the ELA SBA while the majority of BtC math students earned a L1 or L2 on the math SBA. Approximately 75% of BtC students earned a B or better in the course, which qualifies them to take a college level course at any college in Washington State. However, only 60% of BtC English students and 25% of BtC Math students took a college level course during their first term at a CTC. Students that earned a B or better in BtC English and took a college English course during their first term at CTC generally earned higher grades than CTC students that scored L2 and L3 on their ELA SBA and did not take BtC. BtC Math students that earned a B or better and took a college level math course during their first term at CTC earned slightly higher or about the same grades as CTC students that scored L1 and L2 on their math SBA. Though these were not matched comparison groups, the group sizes were disproportionate, and this was not a quasi-experimental study, these results do suggest that BtC English students and, to a lesser extent, BtC Math students, perform just as well or higher than comparison students when taking college courses during their first term at CTC.

School Year 2019-2020 Qualitative Report

Intensified Algebra

Introduction

In Spring 2020, during the Covid19 school closures, teachers and administrators met with researchers via ZOOM Conferencing to discuss the implementation of their IA courses, with an emphasis on the transition to virtual learning. All schools in Cohorts 2 and 3 were contacted, and researchers met with 37 representatives (teachers and administrators) from those schools. It was clear that in response to the pandemic, teachers and administrators were overwhelmed, and focused on identifying practices to best meet student needs in a constantly shifting climate. During these interviews, administrators acknowledged that much of the transition regarding course content was in the process of being developed by teachers, as they worked to highlight the most relevant standards, and create a repertoire of online instructional resources to deliver curriculum in a new way. Teachers were concerned about student engagement, access to materials, and technology. They also expressed concern about loss of learning, and the impact on students' social and emotional wellbeing. In addition to conversations focused on the COVID response, interview discussions also highlighted the professional development and support schools received, issues around implementation of the grant components, barriers and promising practices of IA.

COVID transition

Agile Mind (AM) advisors played a key role in providing support to schools and teachers during the months of transition to online and hybrid learning. Although each school district adopted their own policies regarding school closures and instructional delivery, AM supports were ready to provide guidance on how to adapt the IA curricular materials and how to adjust instructional strategies. One AM leader noted,

> Advisors are our touchpoint, as they are working with teachers online. Our team is on call if needed. First, we tried to get information as we could. I reached out to teachers and leaders with relationships and figured out what the plan was. I sent emails a few weeks

> after the closure. Around April I talked to folks about what was going on and what they needed.

Another leader shared that the AM team created a COVID parent letter, a partner facing letter, and a document for insuring continuity of instruction with AM. Within one week of school closures, AM highlighted the work that teachers, parents, and students could do during the pandemic to ensure the

highest achievement possible. Additionally, AM offered webinars throughout the transition months, and create a micro-site on their website with access to all resources and communications schools might need to persist through the challenges. Several teachers commented on the level of support they received during the initial COVID school closures, sharing that the "availability and responsiveness," "empathy and understanding," and "wealth of knowledge" were critical to their ability to implement components of IA during the disruption.

Another successful aspect of the IA curriculum during remote learning was the online component, which several teachers were able to use to continue practices already familiar to students. Teachers shared that they were struggling with pacing in an online format, particularly as attendance and engagement was low. Several teachers noted, however, that they were seeing stronger, more consistent attendance from their IA students when compared to their regular math courses. We heard IA participation percentages ranging from 35% to 75% across both cohorts. One teacher commented:

> We have done a lot less [on-line], but we are giving new material. It changes every day, and we roll with the punches. We are doing our best. We have assigned laptops to kids who can come get them. We have free internet until the summer. There is so much stress, so it is hard to keep [students] accountable. So were gonna feel good about what they are doing and keep delivering.

Another shared, "We are focusing on quality over quantity. We have about 60 percent engagement overall. If students are engaging, they will get a grade." During interviews, teachers were noticeably concerned about the loss of learning they perceived would occur due to reduced seat time, and many talked about the need to hold intervention time or reach out to students individually. One teacher shared, "For some of our students, we also have a check and connect model and have paras calling or emailing students to check in with them. For some of the students who are ELL, we have an ELL support to also help with that."

Teachers had different views on transitioning to virtual learning. Several teachers felt the transition was smooth, and used the online materials offered to continue implementing the IA curriculum. A few teachers noted that the online coursework was better than packets for IA, since it was more difficult to give feedback on the packets. Teachers also found it difficult to get workbooks to students in more remote areas of the state. During interviews, teachers and administrators shared their modifications to the IA curriculum, with one noting, "The first week was experimental. Heading into spring break we have a good handle on it now. We are using the website. The tough thing is the workbook. They had to get a pdf or print it out and that was an issue." Several teachers shared that changing the pace of the curriculum was critical during the transition, and one math team noted that they worked together to choose one learning target per week, with only one assignment for grading. Another math teacher commented:

> We tried to divide the unit into parts, build an assignment with interactive sheets on the assignment. [We would] go into the guided practice and use that. And it is not ideal. I don't think
>
> we would promote this as the way to do it. I have no idea if it is the best way to do it. But it has worked for us. The kids doing it in the classroom are doing it online. And the kids that were resistant are not doing it online.

Teachers also discussed challenges with district grading policies that did not support student engagement and made it more difficult to hold students accountable. In most schools, students were given the opportunity to keep or raise their existing grade but could not receive a lower or failing grade. One teacher shared, "It is not going great. [Students] don't have the support at home to be on them about getting work done."

Professional Development and Support

Support from Agile Mind continued to be a strength of this grant across all schools. The combination and variety of support has been a critical component of the professional learning model. Schools seemed to benefit from different types of support based on the teachers' styles, familiarity with the curriculum, and philosophy of instruction. AM trainers provided modeling, coaching, and co-teaching. They offered virtual collaboration during the Covid19 school closures and were responsive to teachers' requests for support. One teacher shared, "Am comes out every other month to meet with them. He comes to meetings and comes to in-services. He coteaches and gives pointers. There's quite a bit of support."

During interviews, several people noted that not only were the AM trainers flexible, but they were also able to find solutions to problems that were unique to each school's situation. For example, several schools moved to a trimester system, which changed their IA delivery model. AM trainers helped to find ways to maintain integrity to the program while adapting to time constraints and scheduling challenges. A few schools noted that the support was more helpful at the beginning of the grant when everything was new. These were more often the programs with consistent leadership and teaching staff. Teacher comments included:

> Monica has been magical. Coming in and watching the teachers, the teamwork they are going thought that has made a lot of difference from just a class to building student culture and what math means. Without her support this year, it would be a thing where 'yeah, let's try it as a pilot' but instead its building a bridge between algebra and geometry and agile mind and the regular curriculum.

> The agile mind support piece is one of the best strengths of agile mind. The built in supports. Monica is awesome. I think because she taught the program, she has good practical examples and supports. She knows how to work with teachers when they are struggling and work with the planning and stuff. Great at problem solving. They communicate with her outside of the class time too.

Implementation

Since the beginning of this initiative, researchers have focused on the implementation of program components to better understand the relationship between implementation and impact. Our research has shown, for example, that student and teacher selection may play a key role in the perception of IA success across all cohorts. Similarly, the level and type of support that IA teachers receive from their building leadership has been important to the sustainability of IA and has allowed teachers to develop and hone their pedagogical skills to align with IA more closely. Quantitative data analyzed over time shows that for Cohort 1, IA math GPA has continued to increase, and move further from the math GPA of the matched comparison group. As many of the IA teachers have been able to strengthen their instructional alignment with content, students may be reaping the benefits.

During qualitative data collection, teachers and administrators were asked to discuss how student selection, teacher collaboration, classroom environment, content delivery, and program support impacted IA during this year of programming. Although COVID significantly impacted the traditional model, several programs demonstrated flexibility and adaptability, and continued to

practice the growth mindset skills embedded within the curriculum. In addition to interviews and focus groups, building leaders were asked to complete an implementation survey to provide additional information on their practices. Results are included at the end of this section.

Student Selection into IA has been refined over the years of the grant in an effort to meet the specific needs of individual school communities. All schools used a combination of data points and involved multiple stakeholder groups, including administrators, counselors, and teachers. Most schools used assessment scores, including 8th grade SBA scores, and several schools have started to collaborate with middle school teachers to develop a more comprehensive picture of student needs. Experienced IA teachers identified being more involved in the selection process, and continued to support the notion that students with regular attendance and minimal behavioral issues were likely to have greater success in IA. This perspective was challenged this year by a few schools who acknowledged that many students resist participation in math because they have felt disenfranchised and unsuccessful. These experiences often lead to disruptive behaviors, yet these are some of the students they specifically wanted to target, so they could help them to reframe their thinking and develop a growth mindset.

Collaboration between IA teachers was another consistent strength of participation in this grant. During the transition to online learning, but also throughout the year, teachers made time to talk with one another regularly. Some schools offered built in collaboration time, but many teachers shared that they met with their IA peers on their own time. It was also interesting to learn that many IA teachers were sharing their strategies, particularly around the growth mindset work, with their non-IA math colleagues. Administrators acknowledged that this practice was becoming more common, and that math departments were benefitting from the training and materials provided through IA. One school administrator shared, "I would say yes, in that our math department is a traditional department and its refreshing to have teachers that are being engaging. In terms of the long plan, there's a lot of work that needs to be done with the department as a whole. So, to have the IA teachers to become leaders is a goal that I have."

The classroom environment was consistently identified as notably different from other 9th grade classrooms. One administrator noted, "The kids really feel like the culture in the classroom is really welcoming, and kids are comfortable. Confidence in math has gone up. They are liking it where they haven't before." Teachers and administrators shared that the classes seemed more collaborative, and more mature. By incorporating the growth mindset learning at the beginning of the year, the transition from middle school to high school was addressed indirectly, and students were given more time to ease into the new expectations and pressures of high school. One teacher shared, "The mindset portion of it has been the best. The other teachers overlook that, getting into the curriculum so they don't spend as much time in setting up the environment,

which pays off down the road. Students trust each other and trying new things." Another noted, "There is a healthier socioemotional vibe in those classes, especially when compared to other freshman courses. The culture has an element of collaboration and practice of routine and respect with the students."

Challenges to implementing IA remained fairly consistent with prior years. Teachers shared that student placement was critical, as is teacher mindset and willingness to learn new strategies. Scheduling can be a barrier, particularly with several schools that moved to a trimester model. Additionally, there were new challenges related to remote learning. Many teachers struggled to handle the volume of content with limited access to students and found it more difficult to engage in a meaningful feedback exchange with students. One teacher commented, "The biggest challenge to virtual is constant feedback. They aren't asking questions if they aren't in the classroom." Opportunities for student talk were also eliminated due to challenges and restrictions with conferencing platforms. Another teacher noted:

> From 110 to 65 minutes is rough, biggest struggle. Trying to take advantage of the benefits of the program and student discussion was a lot harder. It felt more like direct instruction than years past. That was tough to do. We're not trained on how to cut a 110-minute program into an hour."

Finally, teachers were overwhelmingly concerned with potential loss of learning, and preparation for the next level of math. While in years past, teachers have expressed confidence that success in IA is a strong indicator of success in future math courses, with COVID modifications teachers seemed less sure. The also expressed concern about incoming 8th grade students, and their readiness to benefit after missing a significant amount of live instruction. One teacher asked, "Keeping in mind the closure, how do we recover the gaps? The incoming 8th graders would not have been at the same place as they should, especially since they are lower students. How do we recover more than normal gaps?"

Leadership Implementation Survey

To quantify grantee implementation efforts, researchers developed the Intensified Algebra Implementation Survey, administered via Survey Monkey in Spring 2020. Respondents were asked 21 questions focused on five implementation categories. These categories included: *Planning; Infrastructure, Resources and Materials; Integration and Alignment of Resource; Monitoring Implementation Progress; and Professional Development.* Likert style questions were used to determine the level of implementation fidelity, with a score of "1" demonstrating

weak implementation fidelity, and a score of "4" representing strong implementation fidelity. Surveys are administered each spring throughout the duration of the grant. Although Cohort 1 schools are no longer participating in the grant, survey results for these schools are included in Appendix E.

Cohort 2

During this third year of implementation, Cohort 2 leaders reported that all 5 implementation categories remained consistent or improved throughout their years of participation in the grant. *Planning* and *Integration & Alignment of Resources* saw the most growth in positive responses during the Year 3 survey administration. These categories represent many of the activities schools were focused on during the spring 2020 school closures. Leaders discussed the increase in collaborative planning required to meet the changing academic climate and adjust curriculum and instruction. They also discussed the importance of looking at standards and course progression and aligning the IA curriculum to best meet the abbreviated timeline during COVID school closures. Scores in *Infrastructure, Resources & Materials* have held steady over time, as the Agile Mind team has continued to provide schools with all the materials and supports to successfully build a site-specific delivery model.

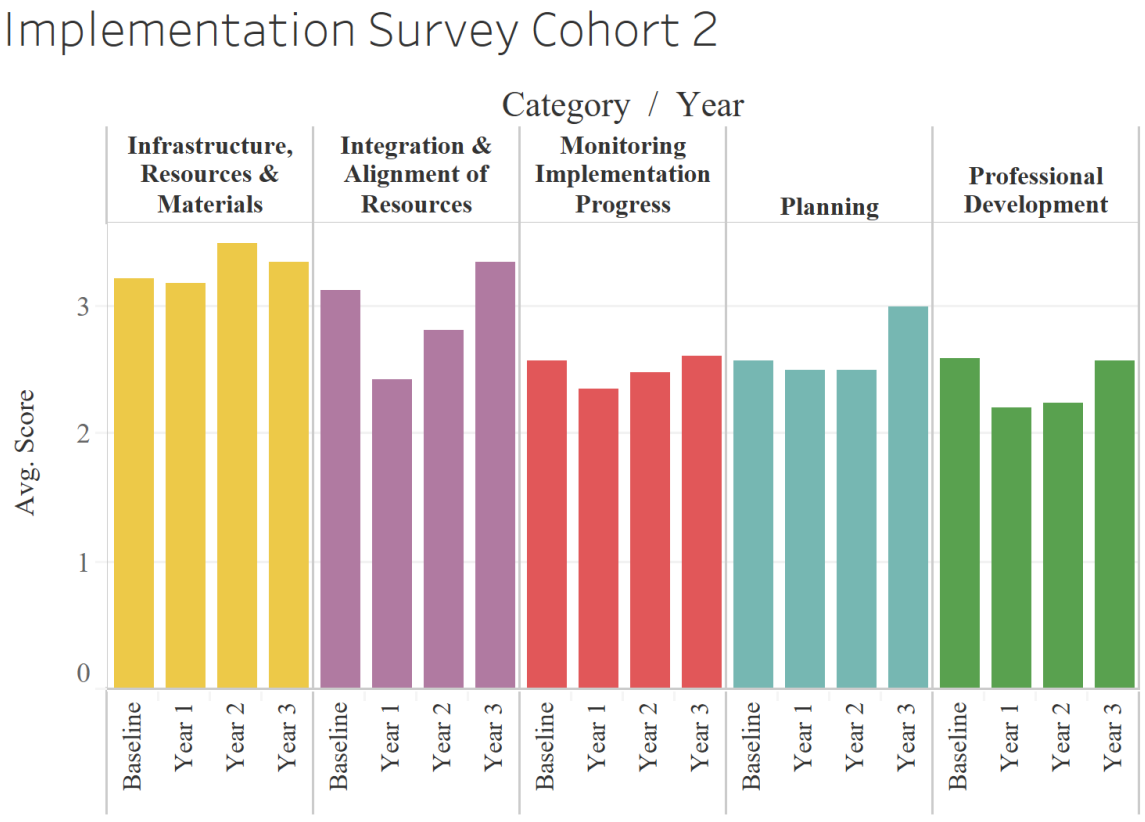

Figure 33

Cohort 3

Implementation scores were less consistent across the five categories for Cohort 3 building leaders. While scores in *Monitoring Implementation Progress* increased during the 2019-2020 school year, scores in the other categories decreased, or remained level with previous years. Building leaders rated *Infrastructure, Resources & Materials*, and *Integration & Alignment of Resources* as high implementation categories, however. This perception was confirmed in interviews, with leaders acknowledging that teachers were leaning on the curricular resources, online materials and assessments, and growth mindset lessons to support students during the school year.

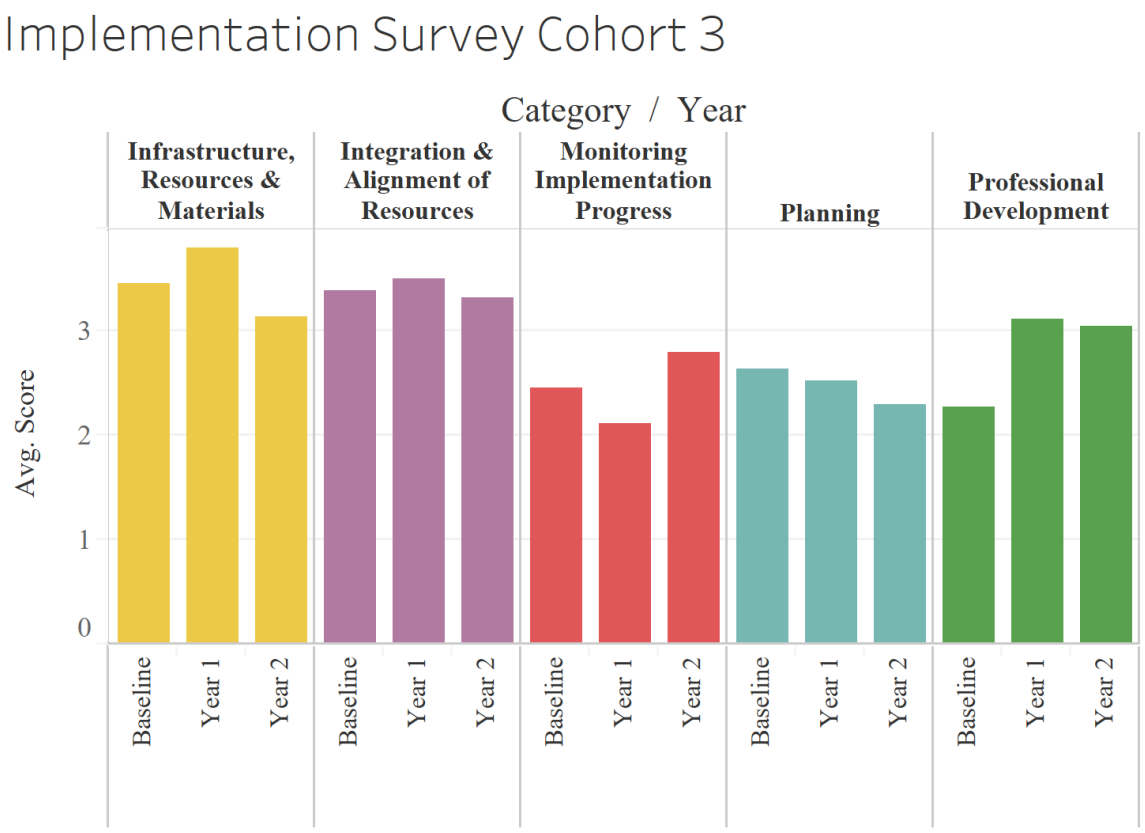

Figure 34

Perceptions of Impact

Student Successes were identified across all cohorts. Teachers and administrators continued to notice increased math confidence leading to greater engagement, academic discourse, and willingness to take risks and try new things. One administrator shared,

> I think a lot of that evolves over time. Obviously, the kids haven't been successful in math in a long time so when they get to high school, they have this baggage. They know they have been struggling so their expectations and hopes around how successful they will be are different than ours. [Our IA teacher] collects self-efficacy data from students at first to see how they rate themselves over time. Their willingness to engage changes over time. When they start everything is new and they are building relationships and getting to know each other.

An IA teacher also commented, "It's amazing to see the transition in a short amount of time. We had a girl who her very first day in the class blew out of there because she did an activity where there is an expectation where they all participate, and she wasn't having it. But it changed over time, we kept working with her and telling her its ok to be wrong but just engage and it grew in her."

In addition to perceptions of student successes related to the course, several IA teachers and administrators noted the impact on school and classroom culture. They also highlighted the development of teacher efficacy resulting from the AM support and professional development. Teachers who had been participating in IA over time were demonstrating leadership skills and sharing their learning with peers in more collaborative ways. These outcomes have the potential to expand the benefits of the IA curriculum to additional groups of students and staff.

Conclusions

Although this was an unusual school year, IA teachers and building administrators willingly shared their perceptions of the IA program in their school communities. Most schools noted that implementation was going smoothly until the COVID school closures in March 2020. Schools worked with AM trainers to develop a best fit model for their community needs. The flexibility and knowledge of the trainers, which has been a highlight of this initiative over several years, became more evident during this disruption. The professional development for IA teachers

continued at a robust pace during the pandemic and provided multiple ways for teachers to engage in new learning and problem solving.

When looking at multiple data points, it is evident that a holistic approach, including student and teacher selection, the IA curriculum, teacher instructional practice and experience with the course, flexibility with the delivery model, and comprehensive support has a relationship to math outcomes for IA students. The quasi-experimental design of this study allows us to make causal inferences while accounting for confounding variables not included in the statistical model. After several years of data suggesting a clear pattern, it is important to consider the possible implications of this math curriculum on student success, particularly during their 9th grade year. It is also relevant to consider why geometry scores for IA students are not seeing the same improved outcomes. Leaders should explore the strengths of the IA model, and identify ways to incorporate those components into all math courses to meet the needs of a diverse group of students.

Recommendations

After several years of participation in this initiative, schools have developed and refined implementation practices to meet the needs of their students and teachers. This is a strength of the grant and has led to positive perceptions and outcomes over time. In general, recommendations from program stakeholders focus on the curriculum and the materials. A few teachers have shared that some lessons can be confusing to teach, including the slope formula and the absolute value lessons. Additionally, schools have shared that they would prefer packets to workbooks, as these would be easier to organize. A few teachers asked if there were trainings to help understand the use of performance assessment in math. One teacher commented, “I would add more practice problems. Where we need more practice, they are not getting it. And they need more space in the books to show the steps and work through it. More practice, more space.”

In addition to suggestions about the materials and pacing of the IA curriculum, several experienced administrators and teachers recommended that new teachers and schools “believe in the plan of implementation.” One noted, “I would tell new teachers to follow it with fidelity. It was put together for a reason, so use it as its written. You may have to learn how to teach differently. I am still reminding myself that I am teaching differently, all about committing yourself to going with the curriculum and using it with fidelity and making changes you need to make to be a better teacher.”

Appendices

Appendix A. Intensified Algebra Grantee Schools

Table 15. Intensified Algebra Cohort 1 Grantee Schools

District/Consortium	*School*
Bellingham	Bellingham High School
Bellingham	Sehome High School
Bellingham	Squalicum High School
Granite Falls	Crossroads High School
Granite Falls	Granite Falls High School
Manson	Manson High School
Mount Baker	Mount Baker High School
Oroville	Oroville High School
Tonasket	Tonasket Middle School
Granger	Granger High School
Wahluke	Wahluke High School
Walla Walla	Walla Walla High School
Wapato	Wapato High School

Table 16. Intensified Algebra Cohort 2 Grantee Schools

District/Consortium	*School*
Bethel	Graham-Kapowsin High School
Bethel	Bethel High School
Bethel	Spanaway Lake High School
Edmonds	Edmonds-Woodway High School
Edmonds	Lynnwood High School
Mt. Adams	White Swan High School
Sequim	Sequim High School
Yakima	Davis High School
Yakima	Eisenhower High School

Table 17. Intensified Algebra Cohort 3 Grantee Schools

District	*School*
Arlington	Arlington High School
Cashmere	Cashmere High School
Edmonds	Mountlake Terrace H.S.
Edmonds	Meadowdale High School
Ellensburg	Ellensburg High School
Elma	Elma Middle School
Mount Vernon	LaVenture Middle School
Mount Vernon	Mt. Baker Middle School
Mount Vernon	Mt. Vernon High School
Nine Mile Falls	Lakeside High School
Ocean Beach	Ilwaco High School
Orting	Orting High School
Othello	Othello High School
Prosser	Housel Middle School
Prosser	Prosser High School
Rochester	Rochester High School
Stanwood-Camino Is.	Stanwood High School
Sumner	Sumner High School
Sumner	Bonney Lake High School
Woodland	Woodland High School

Appendix B. Intensified Algebra Comparison Schools

Table 18. Agile Mind Cohort 1 Comparison Schools

District/Consortium	*School*
Chimacum School District	Chimacum Elementary School
Entiat School District	Entiat Middle and High School
Everett School District	North Middle School
Everett School District	Sequoia High School
Granger School District	Granger Middle School
Klickitat School District	Klickitat Elem & High
Montesano School District	Montesano Jr-Sr High
Moses Lake School District	Moses Lake High School
Mukilteo School District	ACES High School
North Kitsap School District	North Kitsap High School
North Thurston School District	River Ridge High School
Sequim School District	Sequim Middle School
Toppenish School District	Toppenish High School
Toutle Lake School District	Toutle Lake High School
Tumwater School District	Tumwater High School
Vancouver School District	Jason Lee Middle School
Vancouver School District	Hudson's Bay High School
Warden School District	Warden Middle School
Warden School District	Warden High School

Table 19. Agile Mind Cohort 2 Comparison Schools

District/Consortium	*School*
Bridgeport School District	Bridgeport High School
East Valley School District	East Valley High School
Evergreen School District	Evergreen High School
Kent School District	Kent-Meridian High School
Clover Park School District	Lakes High School
Spokane School District	Lewis & Clark High School
Highline School District	Mount Rainier High School
North Mason School District	North Mason Senior High School
Shoreline School District	Shorewood High School
Chehalis School District	W F West High School

Table 20. Agile Mind Cohort 3 Comparison Schools

District/Consortium	*School*
Spokane Public Schools	Lewis And Clark High School
Bridgeport School District	Bridgeport High School
Highline Public Schools	Evergreen High School
Highline Public Schools	Mount Rainier High School
Shoreline School Districts	Shorewood High School
Kent School District	Kent-Meridian High School
Chehalis School District	W F West High School
North Mason School District	North Mason Senior High School
Clover Park School District	Lakes High School
East Valley School District	East Valley Middle School
East Valley School District	East Valley High School

Appendix C. BtC Schools

Table 21. BtC Grantee Schools

District	*High School*	*English*	*Math*
Central Valley School District	Central Valley High School	2	1
Central Valley School District	Mica High School	1	2
Central Valley School District	University High School	1	2
Cheney School District	Cheney High School	2	1
Chewelah School District	Jenkins JR SR High School	1	1
Columbia (Stevens) School District	Columbia High School	1	1
Davenport School District	Davenport High School	1	1
Deer Park School District	Deer Park High School	1	0
East Valley School District (Spokane)	East Valley High School	0	1
Freeman School District	Freeman High School	1	0
La Crosse School District	La Crosse High School	1	1
Mead School District	Mead High School	1	3
Mead School District	Mt Spokane High School	1	1
Newport School District	Newport High School	1	1
Nine Mile Falls School District	Lakeside High School	0	1
Northport School District	Northport High School	0	1
Odessa School District	Odessa High School	0	1
Pullman School District	Pullman High School	2	0
Selkirk School District	Selkirk High School	0	1
Spokane School District	Ferris High School	1	2
Spokane School District	Lewis and Clark High School	1	1
Spokane School District	North Central High School	1	1
Spokane School District	On Track Academy	7	2
Spokane School District	Rogers High School	1	0
Spokane School District	Shadle Park High School	3	0
Spokane School District	The Community School	2	0
Sprague School District	Sprague High School	1	1
Wellpinit School District	Wellpinit High School	2	1
West Valley School District (Spokane)	Dishman Hills High School	2	1
West Valley School District (Spokane)	Spokane Valley High School	1	0

West Valley School District (Spokane)	West Valley High School	0	1
Wilbur School District	Wilbur-Creston Coop High School	0	1
Ellensburg School District	Ellensburg High School	2	0
Goldendale School District	Goldendale High School	1	2
Grandview School District	Grandview High School	1	1
Granger School District	Granger High School	0	1
Mabton School District	Mabton Junior Senior High School	1	1
Mount Adams School District	White Swan High School	1	1
Royal School District	Royal High School	2	1
Selah School District	Selah High School	6	2
Toppenish School District	Toppenish High School	3	3
Wapato School District	Wapato High School	0	1
West Valley School District (Yakima)	West Valley High School	0	1
Yakima School District	Davis High School	3	1
Yakima School District	Eisenhower High School	3	1
Yakima School District	Stanton High School	1	1
Battle Ground School District	Summit View High School	1	0
Battle Ground School District	Battle Ground High School	1	1
Battle Ground School District	Prairie High School	1	2
Castle Rock High School	Castle Rock School District	2	1
Evergreen School District (Clark)	Henrietta Lacks High School	0	2
Evergreen School District (Clark)	Heritage High School	1	2
Evergreen School District (Clark)	Mountain View High School	1	3
Evergreen School District (Clark)	Union High School	3	0
Kelso School District	Kelso High School	1	2
Vancouver School District	Columbia River High School	1	2
Vancouver School District	Fort Vancouver	1	2
Vancouver School District	Hudson's Bay High School	1	0
Vancouver School District	Lewis and Clark Flex Academy	1	1
Vancouver School District	Skyview High School	2	1
Wahkiakum School District	Wahkiakum High School	1	1
Wishram High School	Wishram High School	1	1
Lake Quinault School District	Lake Quinault High School	1	1

Montesano School District	Montesano High School	1	1
North Thurston Public Schools	North Thurston High School	1	1
North Thurston Public Schools	River Ridge High School	2	1
North Thurston Public Schools	Timberline High School	1	1
Rochester School District	Rochester High School	1	1
Shelton School District	Shelton High School	0	2
Tenino School District	Tenino High School	2	1
Tumwater School District	Tumwater High School	0	1
Tumwater School District	AG West Black Hills High School	0	1
White Pass School District	White Pass Junior Senior High	2	2
Yelm School District	Yelm High School	0	1
Cape Flattery School District	Clallam Bay High School	1	1
Cape Flattery School District	Neah Bay High School	1	1
Central Kitsap School District	Central Kitsap High School	0	1
Central Kitsap School District	Klahowya Secondary School	1	1
Central Kitsap School District	Olympic High School	0	1
North Kitsap School District	Kingston High School	3	0
North Kitsap School District	North Kitsap High School	1	1
North Mason School District	James Taylor High School	1	1
North Mason School District	North Mason High School	3	1
Port Angeles School District	Port Angeles High School	2	1
Port Townsend School District	Port Townsend High School	1	1
Port Townsend School District	Blue Heron School	0	1
Quileute Tribal School District	Quileute Tribal School	1	0
Sequim School District	Sequim High School	1	1
South Kitsap School District	South Kitsap High School	3	3
South Kitsap School District	Explorer Academy	2	1
South Kitsap School District	Discovery Alternative	2	2
Bethel School District	Bethel High School	2	2
Bethel School District	Challenger High School	1	1
Bethel School District	Graham-Kapowsin High School	2	1
Bethel School District	Spanaway Lake High School	1	1
Clover Park School District	Clover Park High School	3	3
Clover Park School District	CPSD Open Doors	1	1
Clover Park School District	Firwood Secondary School	1	0
Clover Park School District	Lakes High School	1	1
Enumclaw School District	Enumclaw Sr High	1	0
Federal Way School District	Decatur High School	1	3

Federal Way School District	Todd Beamer High School	1	2
Federal Way School District	Federal Way HS	0	5
Fife School District	Fife High School	1	1
Franklin Pierce School District	Franklin Pierce High School	3	2
Franklin Pierce School District	Washington High School	5	1
Highline School District	Evergreen High School	1	2
Highline School District	Tyee High School	0	1
Peninsula School District	Gig Harbor High School	2	1
Peninsula School District	Peninsula High School	2	1
Puyallup School District	Emerald Ridge High School	1	3
Puyallup School District	Puyallup High School	1	1
Puyallup School District	Rogers High School	1	1
Puyallup School District	Walker High School	1	1
Renton School District	Hazen High School	0	1
Renton School District	Lindbergh High School	0	1
Renton School District	Renton High School	0	1
Riverview School District	Riverview Learning Center	0	2
Seattle Public Schools	Ballard High School	0	1
Seattle Public Schools	Cleveland High School	1	1
Seattle Public Schools	Ingraham High School	0	1
Seattle Public Schools	Interagency High School	0	9
Seattle Public Schools	Middle College High School	2	3
Seattle Public Schools	Franklin High School	0	1
Seattle Public Schools	Rainier Beach HS	1	2
Seattle Public Schools	South Lake High School	0	1
Seattle Public Schools	Garfield High School	1	1
Seattle Public Schools	West Seattle High School	1	1
Shoreline School District	Shorecrest High School	0	1
Shoreline School District	Shorewood High School	1	2
Steilacoom School District	Steilacoom High School	0	1
Tacoma School District	Foss IB World School	1	1
Tacoma School District	Lincoln High School	1	2
Tacoma School District	Mount Tahoma High School	1	2
Tacoma School District	Oakland High School	1	0
Tacoma School District	Stadium High School	1	0
Tahoma School District	Tahoma High School	0	1
Tukwila School District	Foster High School	1	1
Asotin-Anatone School District	Asotin-Anatone High School	3	0
Dayton School District	Dayton High School	0	1
North Franklin School District	Connell High School	3	1

Othello School District	Othello High School	1	1
Pasco School District	Chiawana High School	1	1
Pasco School District	Pasco High School	1	2
Pomeroy School District	Pomeroy High School	1	1
Prescott School District	Prescott Junior Senior High	0	1
Prosser School District	Prosser High School	2	1
Richland School District	Hanford High School	0	1
Richland School District	Richland High School	0	2
Richland School District	River's Edge High School	1	0
Walla Walla Public Schools	Walla Walla High School	0	2
Brewster School District	Brewster High School	2	2
Cascade School District	Cascade High School	0	1
Cashmere School District	Cashmere High School	0	1
Coulee-Hartline High School	Coulee Hartline High School	1	1
Grand Coulee Dam School District	Lake Roosevelt High School	1	1
Moses Lake School District	Moses Lake High School	2	2
Okanogan School District	Okanogan High School	0	1
Omak School District	Omak High School	1	1
Warden School District	Warden High School	1	2
Anacortes School District	Anacortes High School	1	1
Arlington School District	Arlington High School	1	1
Edmonds School District	Edmonds-Woodway High School	0	1
Edmonds School District	Lynnwood High School	0	2
Edmonds School District	Meadowdale High School	0	2
Edmonds School District	Mountlake Terrace High School	0	1
Everett School District	Cascade High School	0	2
Everett School District	Everett High School	0	1
Everett School District	Henry M Jackson High School	0	1
La Conner School District	La Conner High School	0	1
Lake Stevens School District	Lake Stevens High School	1	1
Lakewood School District	Lakewood High School	1	1
Lummi Tribal Agency	Lummi Nation School	1	0
Lynden School District	Lynden High School	0	1
Marysville School District	Marysville Pilchuck High School	1	2
Meridian School District	Meridian High School	1	0
Monroe School District	Leaders in Learning HS	1	1

Mount Vernon School District	Mount Vernon High School	1	2
Mukilteo School District	ACES High School	1	0
Mukilteo School District	Kamiak High School	1	1
Mukilteo School District	Mariner High School	1	1
Oak Harbor School District	Oak Harbor High School	2	2
Sedro-Wooley School District	Sedro-Wooley HS	1	2
South Whidbey School District	South Whidbey High School	0	2
Stanwood-Camano School District	Stanwood High School	1	1
Sultan High School	Sultan High School	1	2
Summit Public School: Olympus	Summit Public School: Olympus	0	2
Summit Public School: Sierra	Summit Public School: Sierra	0	2

Appendix D. Supplemental Bridge to College Data

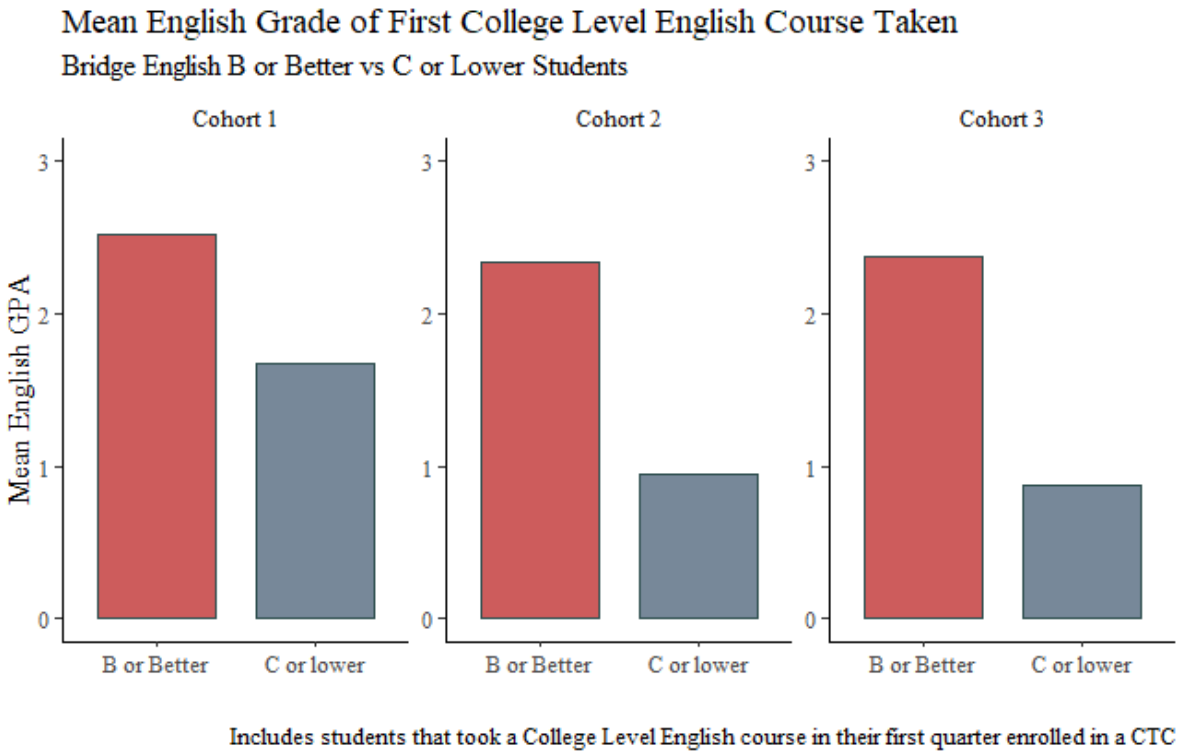

Figure 35

Figure 35 shows the mean English grades earned by Bridge B or better and C or lower students in their first college course taken across all three cohorts. Bridge B or better students had much higher mean grades in college English courses than C or lower students. **Error! Reference source not found.** 22 shows the group sizes of each group, as there were many times more B or better students in college level English courses than C or lower students.

Table 22. Group size

Group	Cohort 1	Cohort 2	Cohort 3
B or Better	138	219	184
C or Lower	28	28	18

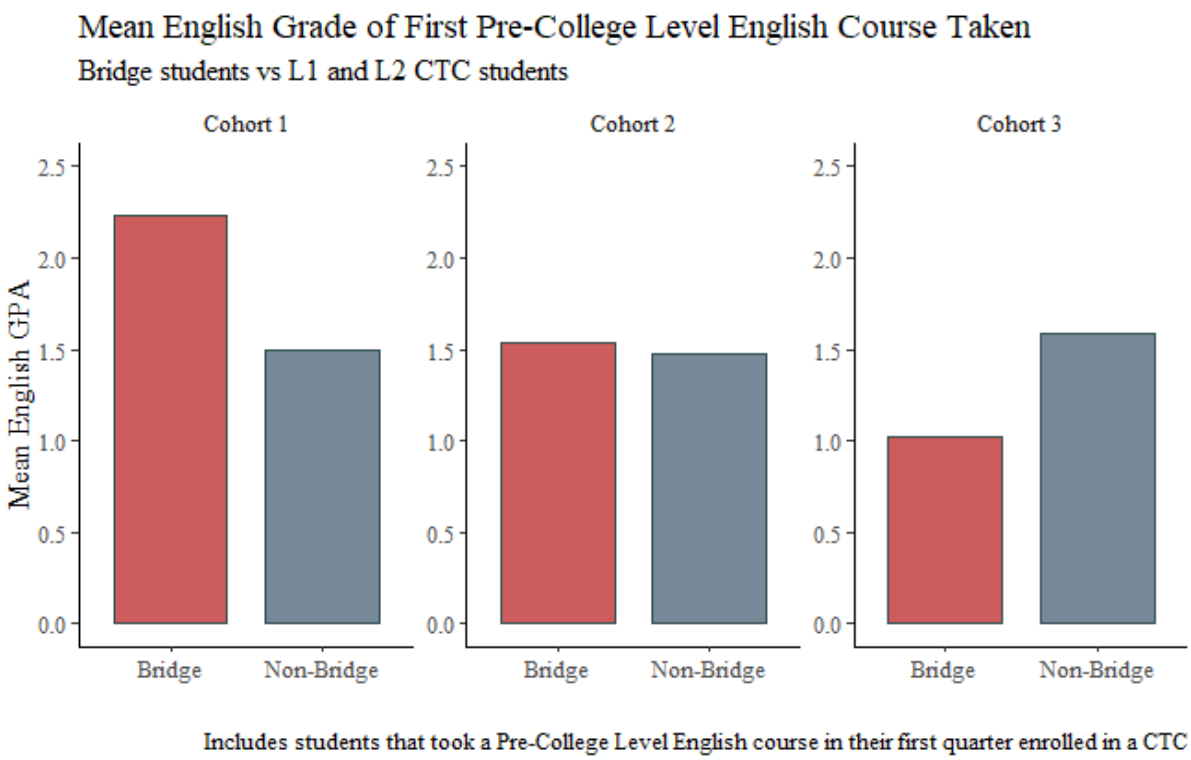

Figure 36

Researchers also analyzed the English and math CTC grades of Bridge and non-Bridge students that took a pre-college course during their first term. Figure 36 shows a comparison of the mean pre-college English grades for Bridge and non-Bridge L1 and L2 students across all three cohorts. Cohort 1 Bridge students had a much higher mean GPA than their non-Bridge classmates. Cohort 2 Bridge students and non-Bridge students had a similar mean GPA and Cohort 3 Bridge students had a lower mean GPA than non-Bridge students. As seen in Table 23, the sizes of each group compared were uneven, which explains some of the differences across groups.

Table 23. Group size

Group	Cohort 1	Cohort 2	Cohort 3
Bridge	57	86	62
Non-Bridge	768	438	374

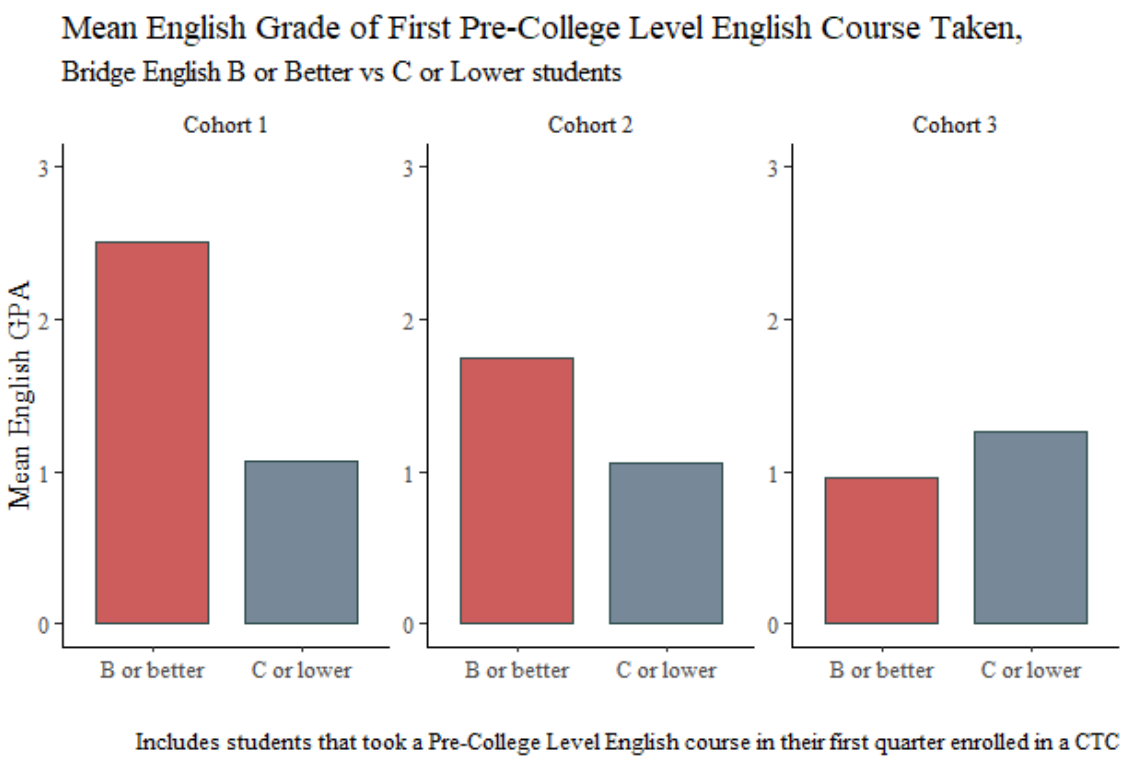

Figure 37

Figure 37 shows the mean pre-college English grades of Bridge B or better and C or lower students in their first CTC term across all three cohorts. In cohorts 1 and 2, B or better students earned higher grades than the C or lower students but in cohort 3 the C or lower students earned slightly higher grades. Table 24 shows the uneven group sizes in this analysis.

Table 24. Group size

Group	Cohort 1	Cohort 2	Cohort 3
B or Better	46	59	48
C or Lower	11	27	14

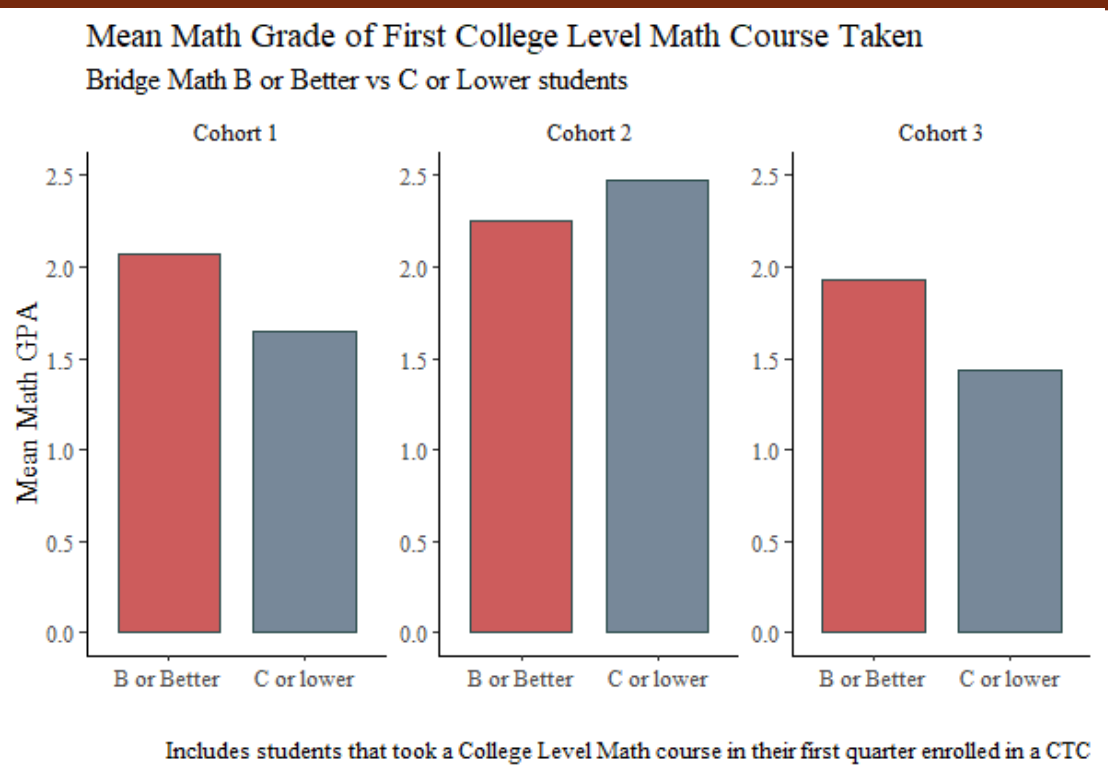

Figure 38

Figure 38 shows the mean college level math grades of Bridge B or better and C or lower students across all three cohorts. B or better students in cohort 1 and cohort 3 earned higher grades than C or lower students. Cohort 2 B or better students, however, earned lower grades than C or lower students. Table 25 shows the group sizes for this analysis.

Table 25. Group Size

Group	Cohort 1	Cohort 2	Cohort 3
B or Better	61	97	70
C or Lower	6	8	3

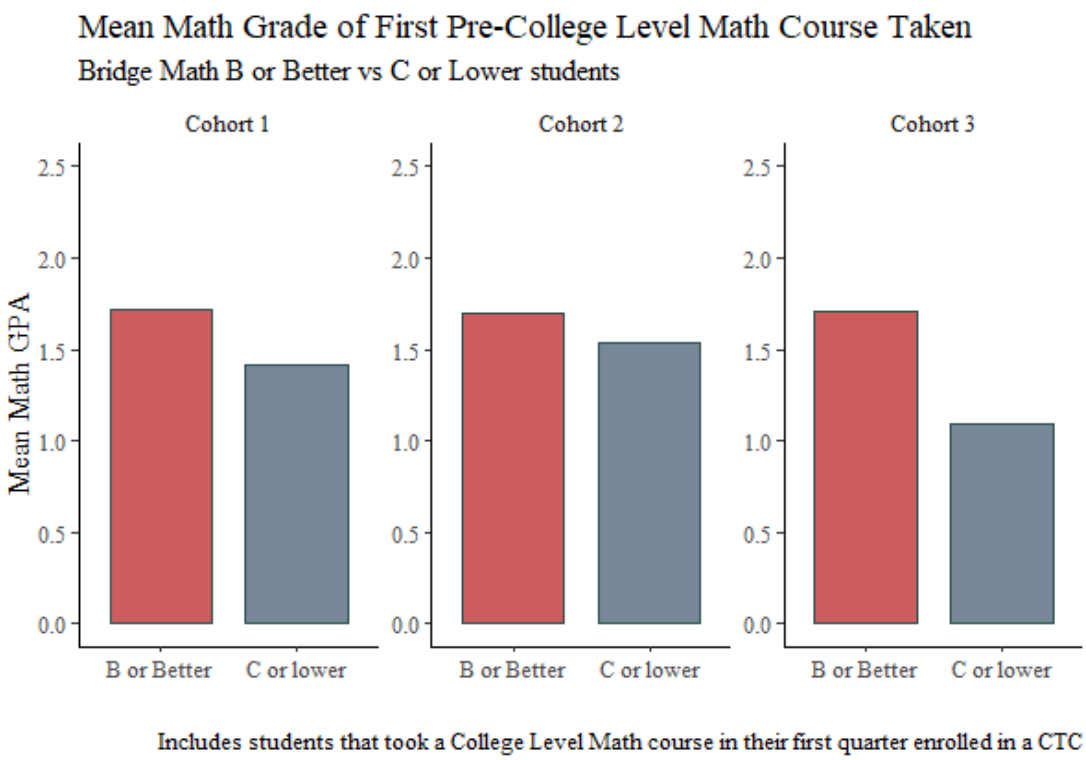

Figure 39

Figure 39 shows the mean pre-college level math grades of Bridge B or better and C or lower students by cohort. Bridge B or better students earned slightly higher grades in pre-college math courses than C or lower students in all three cohorts. Table 26 shows the group sizes for this analysis.

Table 25. Group size

Group	Cohort 1	Cohort 2	Cohort 3
B or Better	112	179	139
C or Lower	20	44	25

Appendix E. IA Cohort 1 Implementation Survey

Longitudinal survey results for Cohort 1 schools are presented in Figure 40. Eleven school leaders completed the survey during the 2018 administration. Over time, Cohort 1 implementation practices have become more aligned with the desired level of IA implementation, particularly regarding infrastructure and integration of resources and materials.

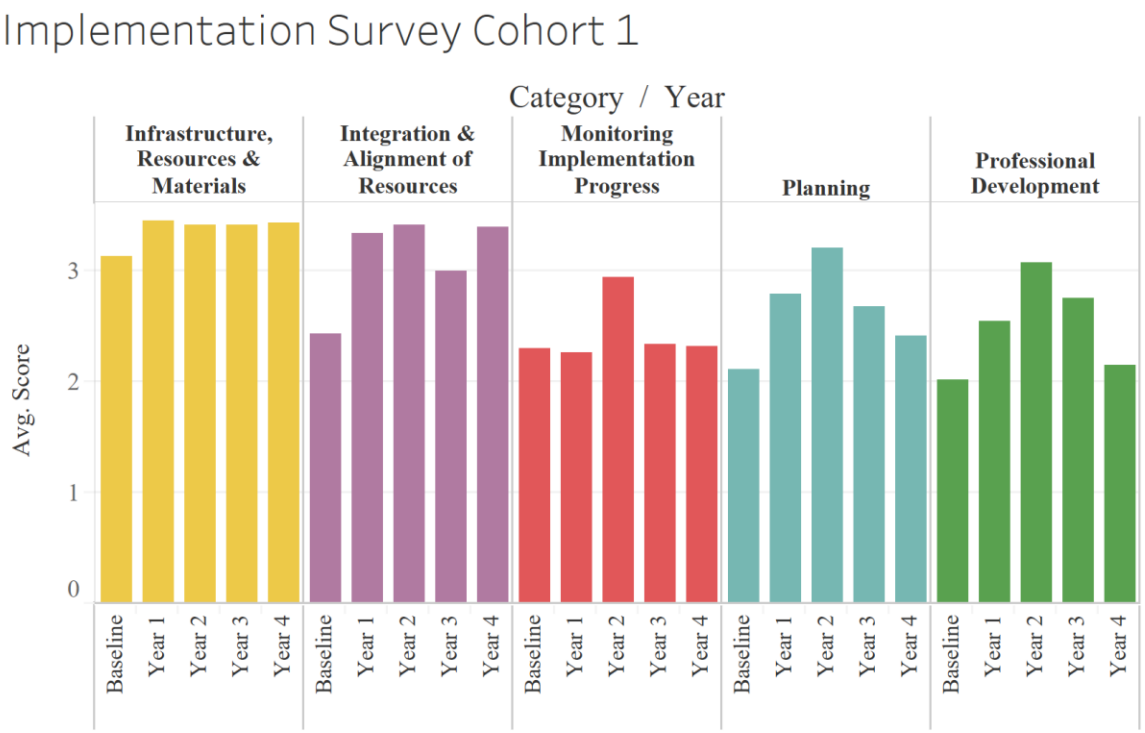

Figure 40. Cohort 1 Implementation Survey Factor Scores, 2016-2019

Figure 40 shows Cohort 1 survey results disaggregated by school. Cohort 1 disaggregated results over time were not included due to the inconsistency of schools completing the survey each year. During Year 3, the majority of school leaders that completed the survey indicated that *Planning*, *Monitoring Implementation Progress*, and *Professional Development* continued to be areas of weaker alignment, while the *Infrastructure, Resources and Materials*, and *Integration and Alignment of Resources* were considered areas of strength. One focus group member commented on their comprehensive implementation efforts:

Our teachers have bought in. They have embraced this and really made it successful. We have implemented with fidelity. We've given it the time it needs, the blocked periods, the technology and support, teacher training/prep/collaboration time, and administrator priority. I don't think we can ask the kids to buy in if we aren't all in ourselves.