

College Readiness Math Initiative

YEAR 6 BRIDGE TO COLLEGE REPORT

The BERC GROUP

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Executive Summary

College Spark Washington (CSW) is a grant making organization dedicated to improving educational outcomes for low-income students in Washington State. In 2014, CSW launched a multifaceted College Readiness Math Initiative (CRMI) designed to support college readiness around the state. The goal of the initiative is to prepare students to transition into college level math without the need for remediation or other placement courses. This initiative includes the following programs:

Intensified Algebra (IA). 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 and the facilitation of growth mindset principles.

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 will be able to move directly to college level math and English courses in college without remediation or additional placement testing.

Academic Youth Development (AYD). Agile Mind, in collaboration with the Charles A. Dana Center, developed Academic Youth Development (AYD). This program translates research on student motivation, engagement, and learning into practical strategies and tools teachers and students can use daily in the classroom. A specific focus is on growth mindset, whereby teachers and students understand that intelligence is not a fixed quality, and through effective effort, persistence, collaboration, and motivation students can improve their academic success.

As part of this strategy to improve educational outcomes for all students, CSW supports on-going evaluation of each program included in the initiative. This evaluation is intended to provide formative and summative data to help understand the fidelity of program implementation as well as help measure program impact. The evaluation includes mixed-methods and multiple measures. By using qualitative and quantitative measures, and by providing formative and summative evaluation data, we can tell the story of program development, measure the fidelity of

program implementation, determine the impact of program components, and provide information for on-going program advocacy and development.

Bridge to College. 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' fourth 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' third year of college. For Cohort 3 BtC students, (12th graders in 2017-2018), researchers analyzed progress into students' second year of college. For Cohort 4 BtC students, (12th graders in 2018-2019), researchers analyzed the first year of postsecondary outcomes. For each year of data reporting, BERDC researchers will use the most available ERDC data for analysis and will update the report when more data is made available.

In both Bridge to College courses, across all cohorts, White and Hispanic/Latino students consistently represent the largest populations of students, representing almost 80% of the total Bridge to College population in each course. Across these cohorts, White and Hispanic/Latino are also attending CTC's at about the same proportion as represented in the high school course, indicating little to no inequities in postsecondary enrollment at the CTC level.

Across all four cohorts, BtC students took college level English courses at a higher rate than the comparison non-BtC students. 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. White students continued to take 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.

In summary, students that took the Bridge to College course in high school showed slightly higher enrollment, grades, and credits earned than the non-Bridge to College students with similar SBA levels. These results suggest that the Bridge to College course provides some level of extra support that carries over into postsecondary courses during the first year in CTCs.

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 the Bridge to College program.

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 BERG 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.

During the 2020-2021 year, schools continued to face unprecedented challenges related to the COVID 19 pandemic. The spring prior, the pandemic shut down schools with little warning. Teachers were tasked with altering instruction to support students in the remote learning environment on the fly. 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.

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 2019-2020, 210 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. 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.

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 22 and Figure 23, these schools have continued to see 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.

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.

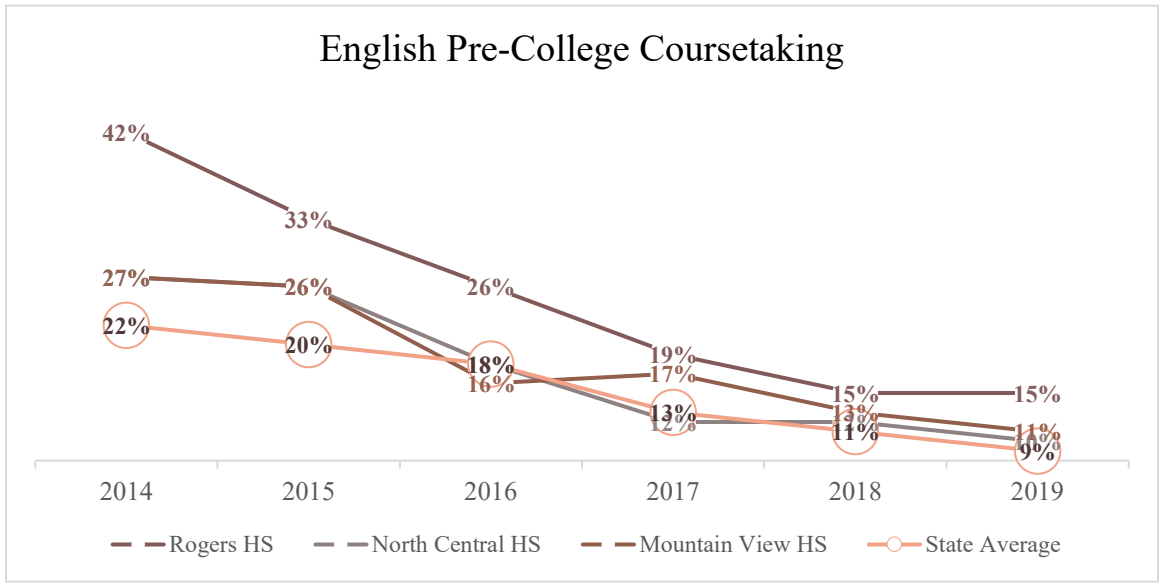


Figure 1

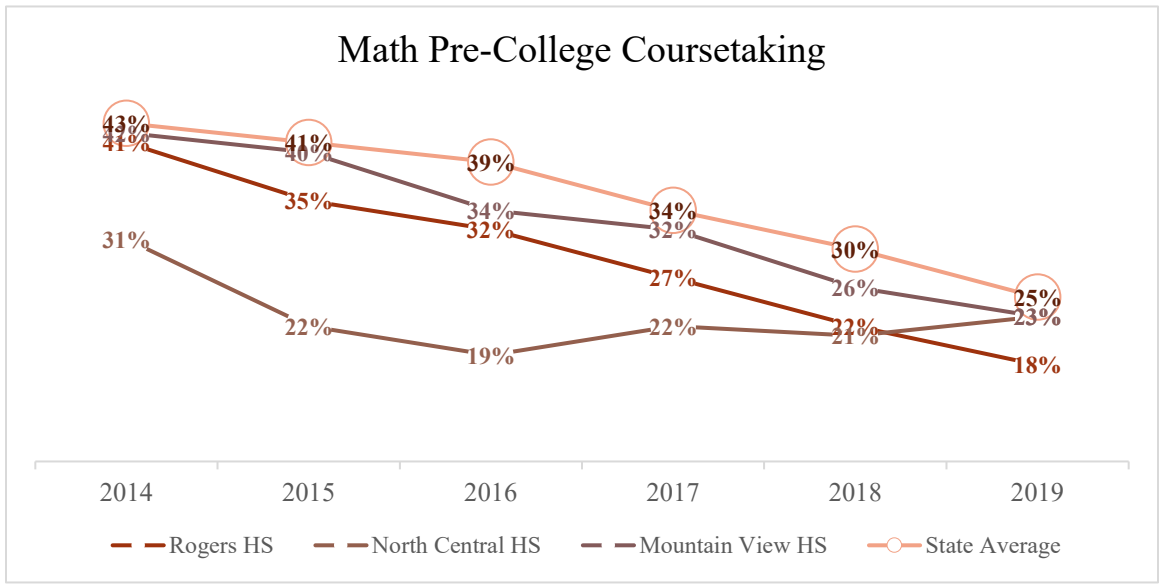


Figure 2

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. In total, four cohorts of Bridge to College students were tracked for this study.

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' fourth 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' third year of college. For Cohort 3 BtC students, (12th graders in 2017-2018), researchers analyzed progress into students' second year of college. For Cohort 4 BtC students, (12th graders in 2018-2019), researchers analyzed the first year of postsecondary 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. Certain data points could change for previously reported cohorts due to the updated data and more advanced data cleaning techniques.

Demographics

Who is taking Bridge to College courses?

Table 4 and Table 5 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 1. 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 2. 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.

Bridge To College English Enrollment By ELA SBA Level

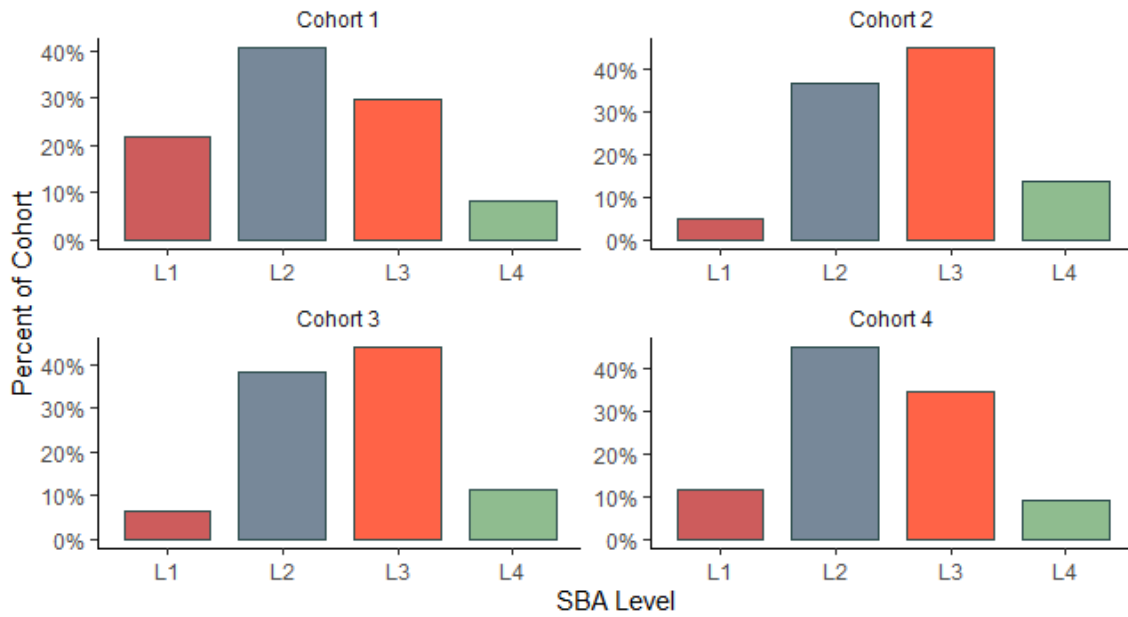


Figure 3

Bridge To College Math Enrollment By Math SBA Level

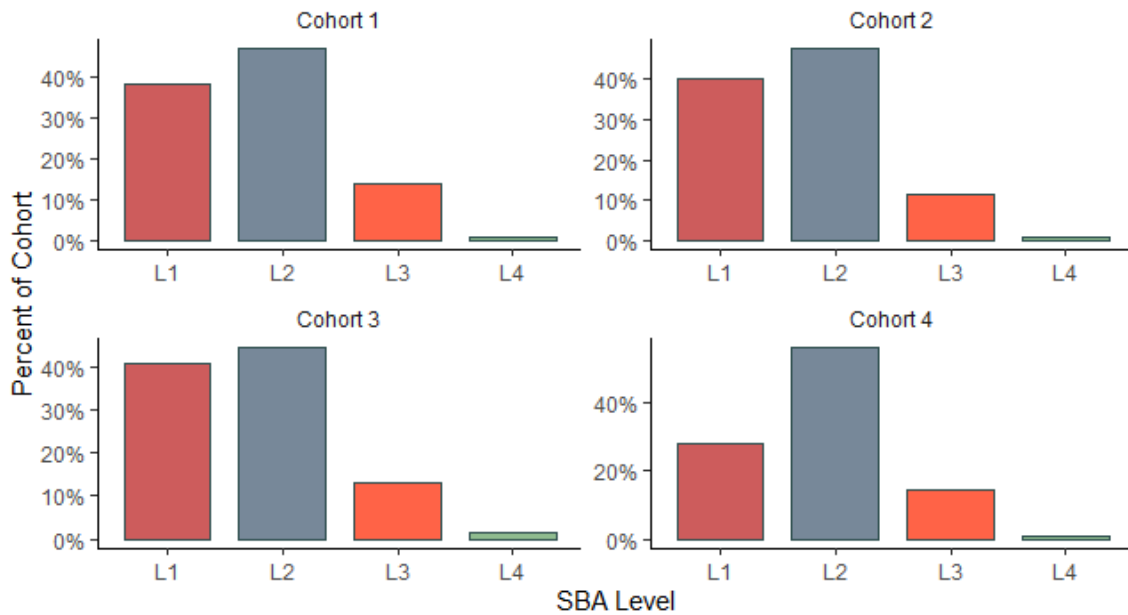


Figure 4

Table 6 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. In other words, if all student earning a B or better used this as a ticket into an introductory college course, we would see 70% or more enrollment in a college course during their first quarter in college.

Table 3

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 4

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. English enrollment dropped slightly in BtC English but doubled for BtC Math during Cohort 4.

Table 5. BtC English Postsecondary Enrollment

Institution	Cohort 1	Cohort 2	Cohort 3	Cohort 4
University (4 year)	175	257	207	176
CTC (2 year)	398	566	460	488

Table 6. BtC Math Postsecondary Enrollment

Institution	Cohort 1	Cohort 2	Cohort 3	Cohort 4
University (4 year)	190	243	224	581
CTC (2 year)	360	703	617	1527

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.

Institute Enrollment of Bridge English Students by SBA Level
 CTC vs. University

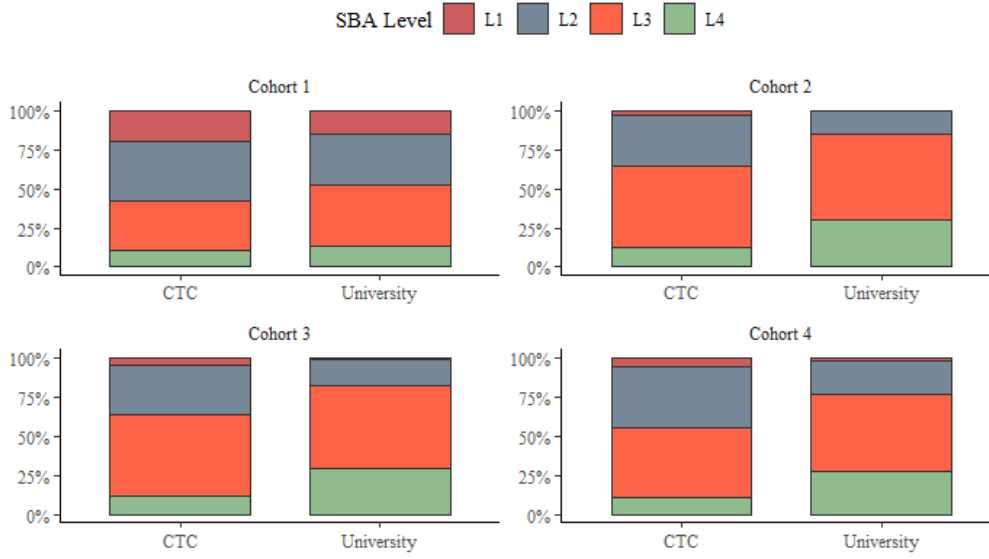


Figure 5

Institute Enrollment of Bridge Math Students by SBA Level
CTC vs. University

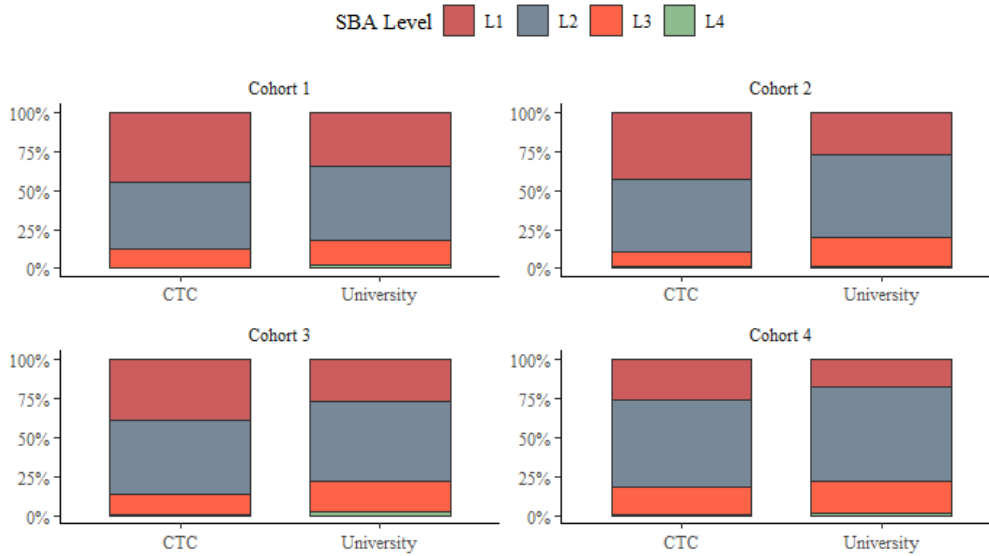


Figure 6

Figure 28 and Figure 29 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 cohorts 1 to 3, 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. In Cohort 4, Asian students are overrepresented but Native students are underrepresented. 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.

Bridge to College English Equity Index

Dotted line represents equitable enrollment of students in CTC

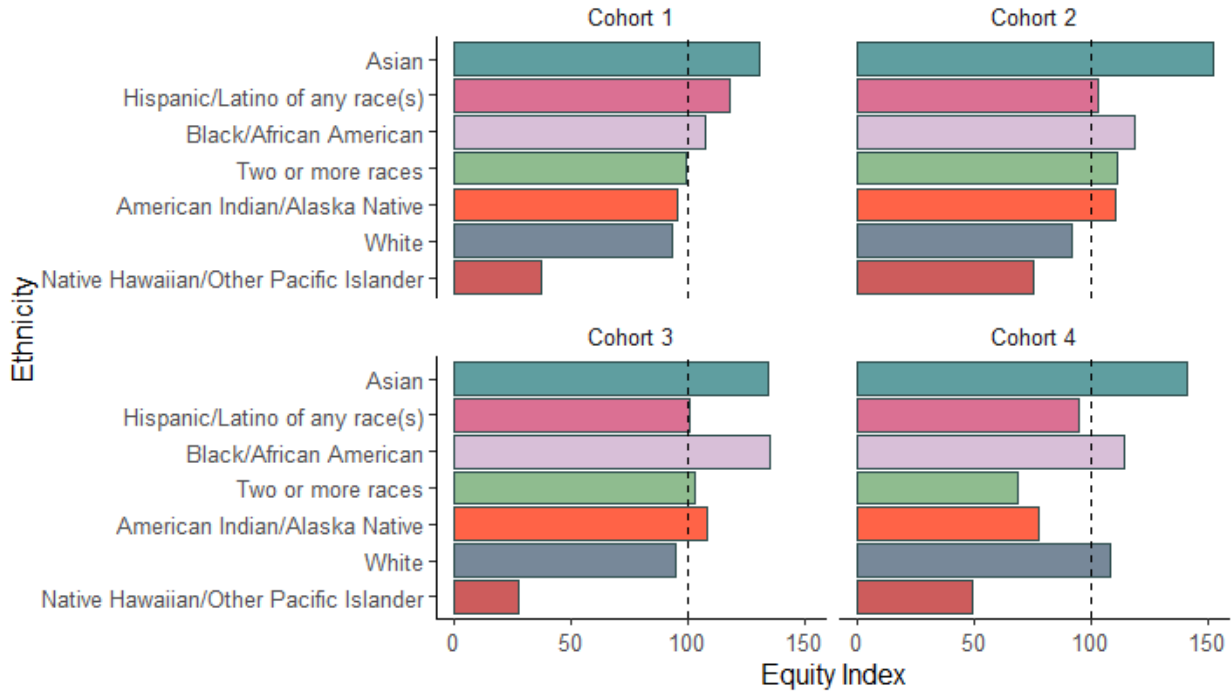


Figure 7

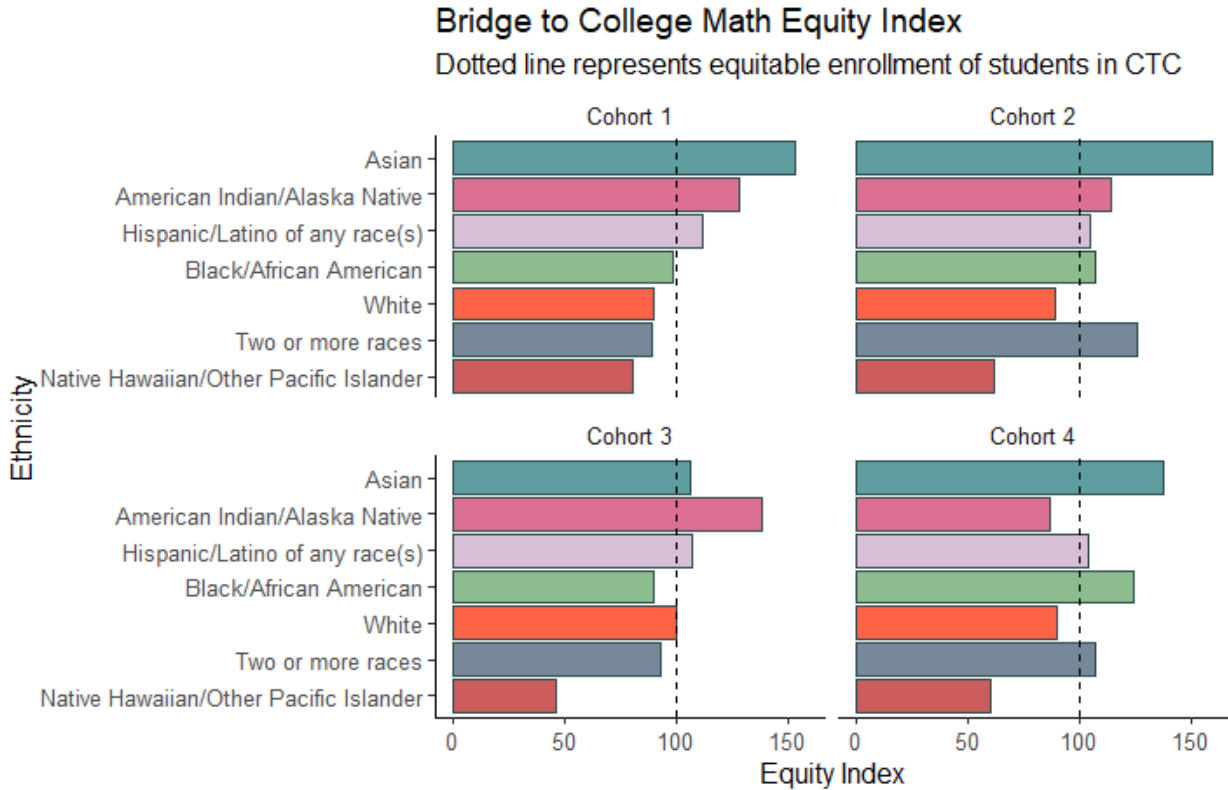


Figure 8

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

Figure 30 compares English course taking patterns of BtC and non-BtC (L1 and L2) students in their first CTC term. Across all four cohorts, BtC students took college level English courses at a higher rate than the comparison non-BtC students. Figure 31 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 Cohorts 2, 3, and 4, a higher proportion of C or lower BtC students did not take an English course during their first term.

Level of English Course Taken in First Term at CTC
 Bridge English students vs. L1 and L2 CTC students

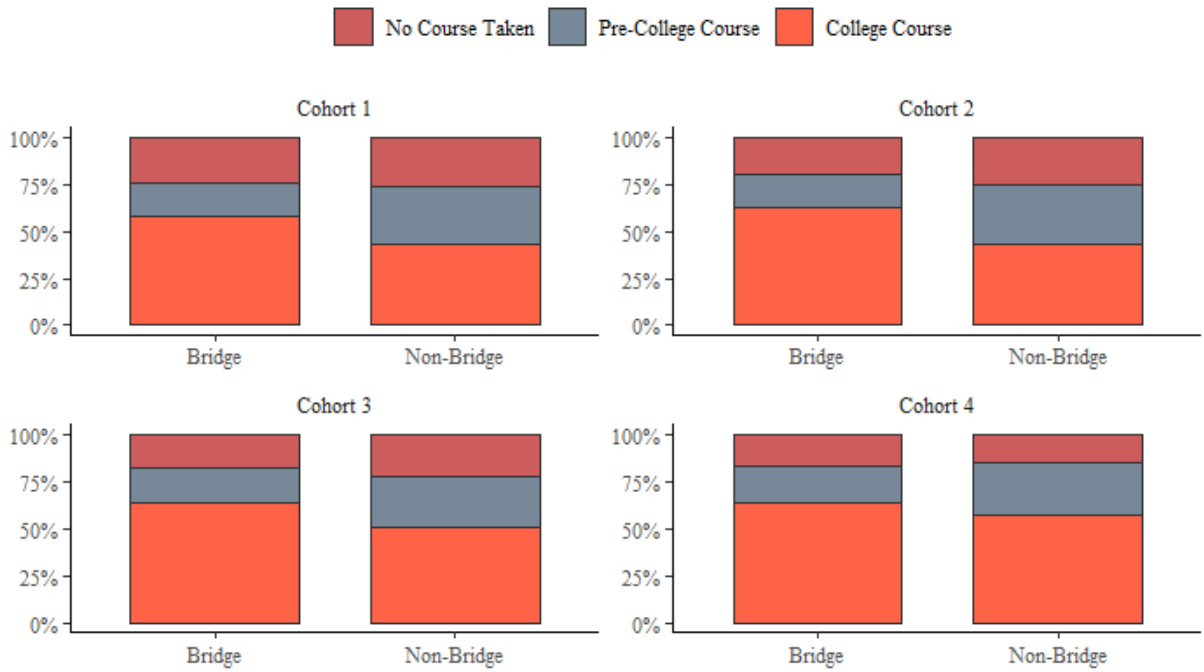


Figure 9

Level of English Course Taken in First Term at CTC
 Bridge English Students Earning B or Better vs C or Lower

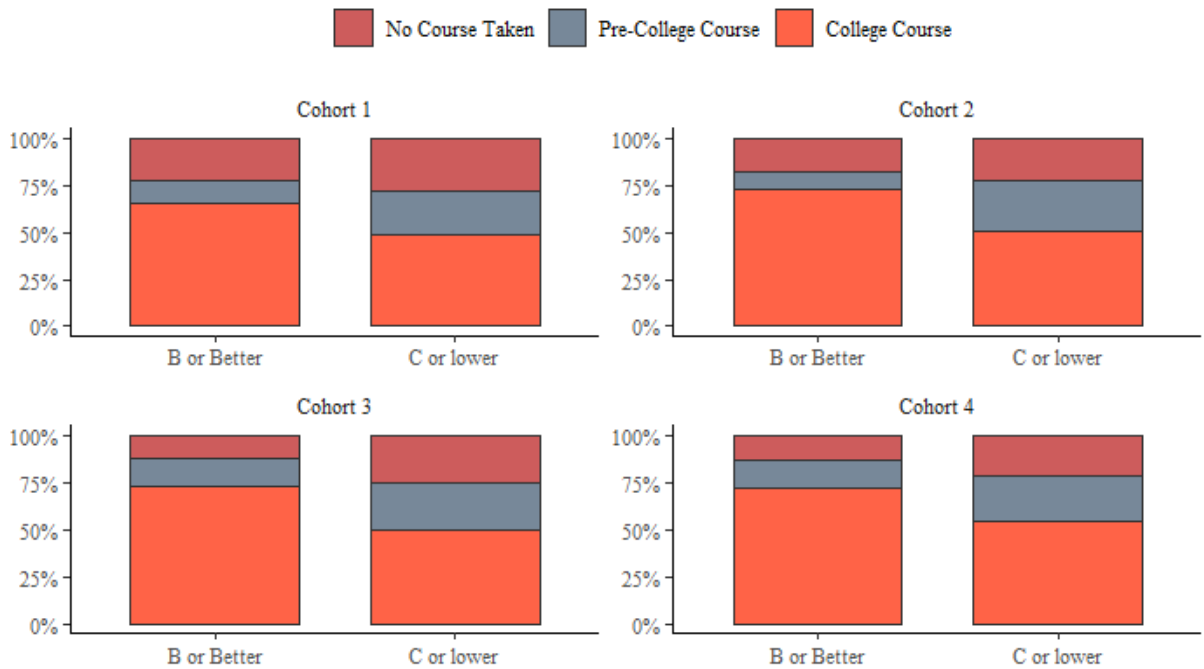


Figure 10

Figure 32 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. This gap was the largest in Cohort 4, where over a third of students did not take a math course in their first term at CTC.

Figure 33 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.

Level of Math Course Taken in First Term at CTC
 Bridge Math students vs. L1 and L2 CTC students

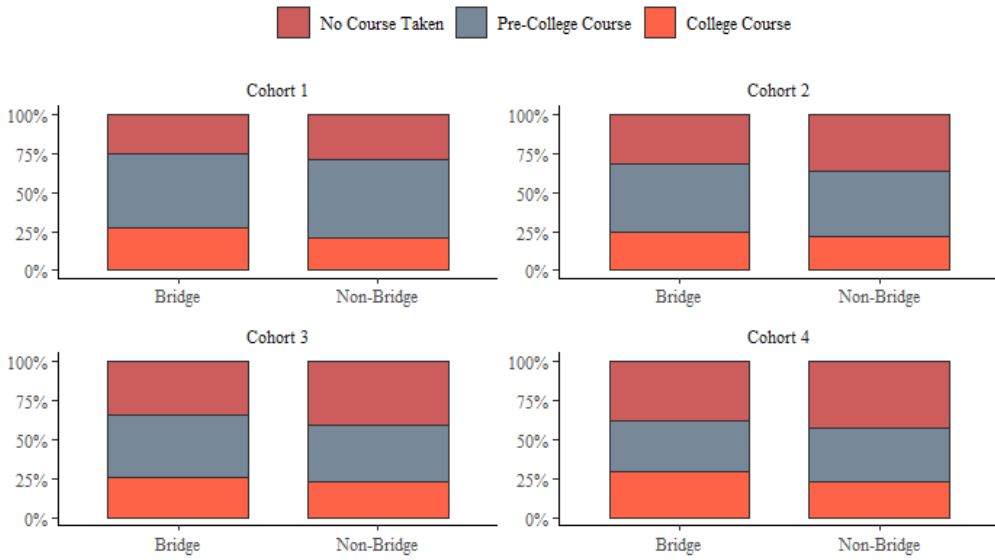


Figure 11

Level of Math Course Taken in First Term at CTC
 Bridge Math Students Earning B or Better vs C or Lower

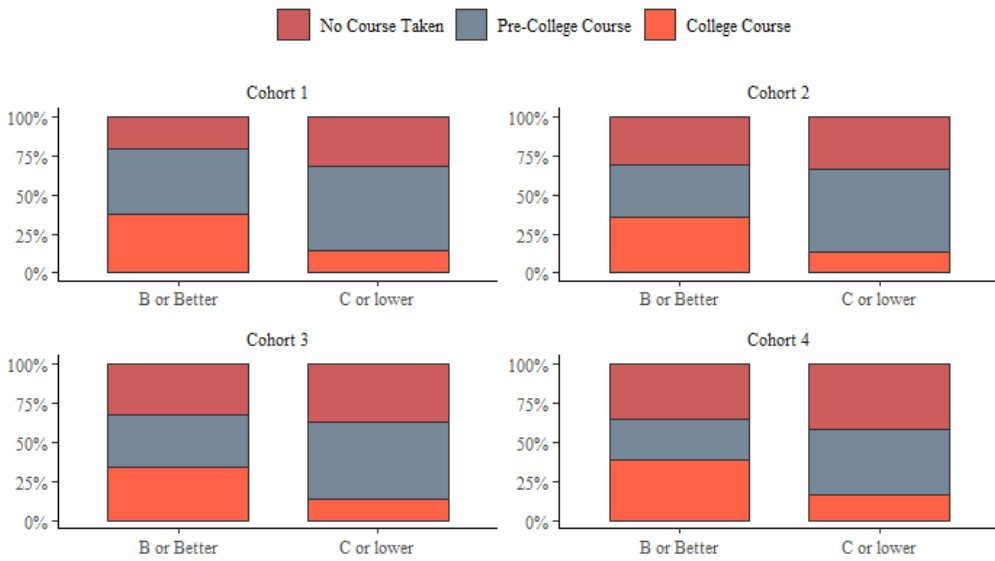


Figure 12

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 34 and Figure 35). White students continued to take 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.

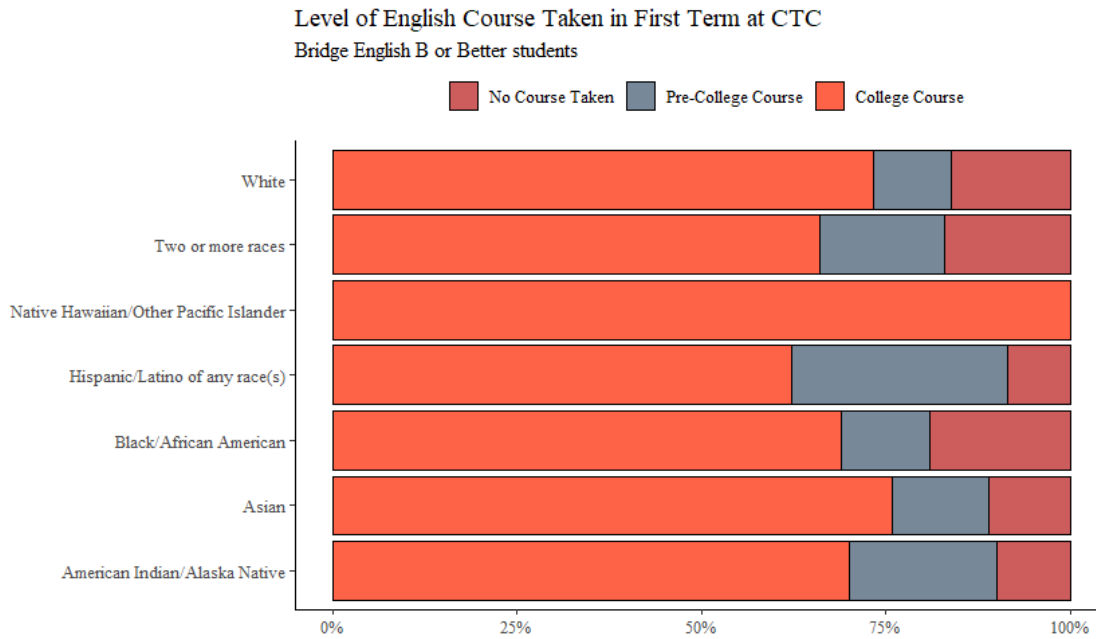


Figure 13

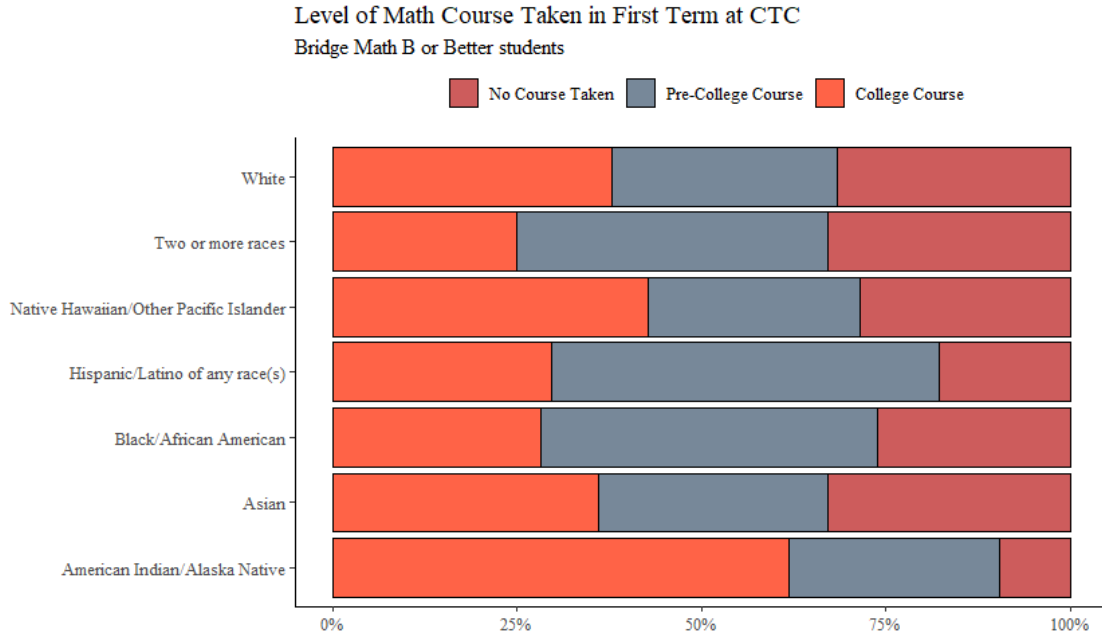


Figure 14

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 36 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 four cohorts, BtC students earned slightly higher grades than their non-BtC classmates. Table 10 shows the group sizes for this comparison.

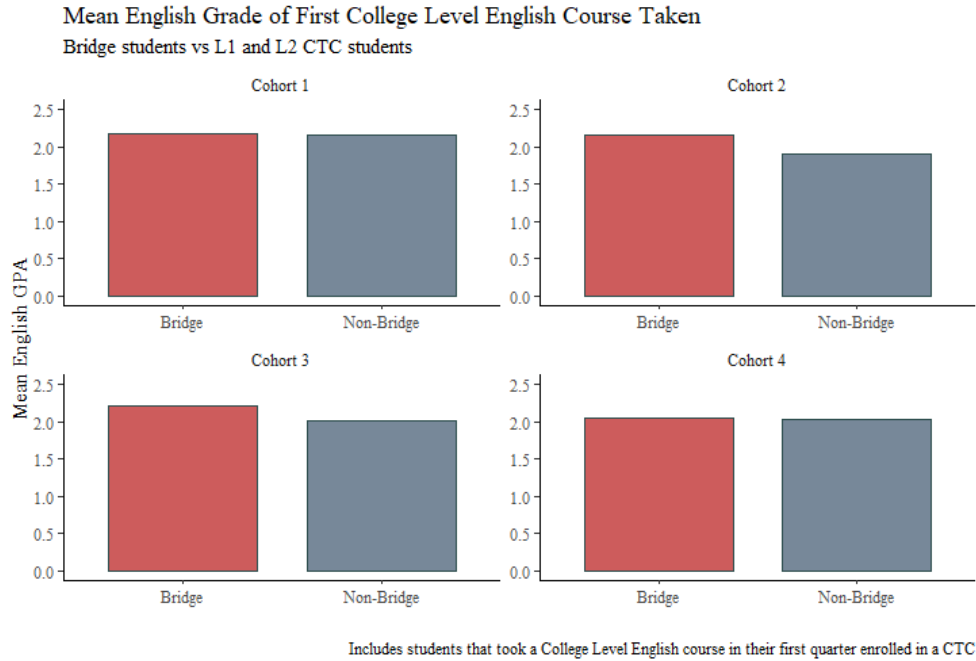


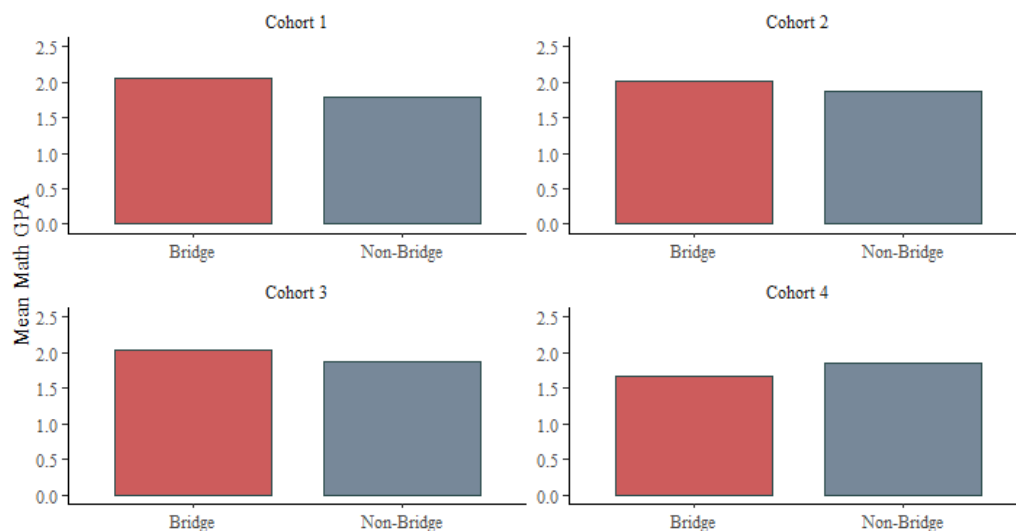
Figure 15

Table 7. Group sizes for Figure 28

Group	Cohort 1	Cohort 2	Cohort 3	Cohort 4
Bridge	166	247	202	195
Non-Bridge	826	541	609	637

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 37). BtC students in Cohort 1, 2, and 3 earned higher grades than their non-BtC classmates while BtC students and non-BtC students earned similar grades in Cohort 4. Table 11 shows the group sizes of this comparison, which were uneven due to the lack of matched comparison groups.

Mean Math Grade of First College Level Math Course Taken
 Bridge students vs L1 and L2 CTC students



Includes students that took a College Level Math course in their first quarter enrolled in a CTC

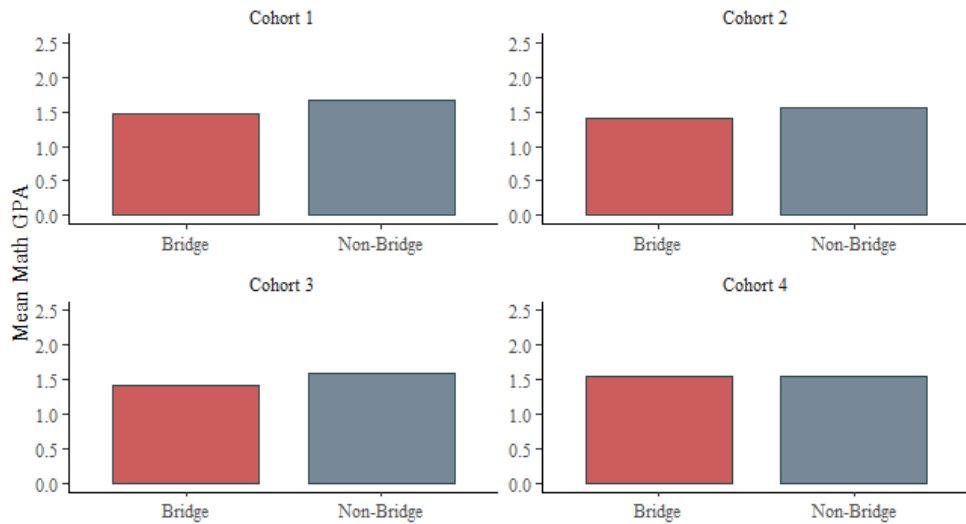
Figure 16

Table 8. Group sizes for Figure 29

Group	Cohort 1	Cohort 2	Cohort 3	Cohort 4
Bridge	67	105	98	224
Non-Bridge	590	808	659	616

Figure 38 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 Cohorts 1-3 and were about the same for Cohort 4. Table 12 shows the group sizes for this analysis.

Mean Math Grade of First Pre-College Level Math Course Taken
 Bridge students vs L1 and L2 CTC students



Includes students that took a College Level Math course in their first quarter enrolled in a CTC

Figure 17

Table 9. Group sizes for Figure 30

Group	Cohort 1	Cohort 2	Cohort 3	Cohort 4
Bridge	132	223	164	297
Non-Bridge	1787	1813	1260	947

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. Cohorts 1 to 3 data reflect two years of CTC data while cohort 4 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.

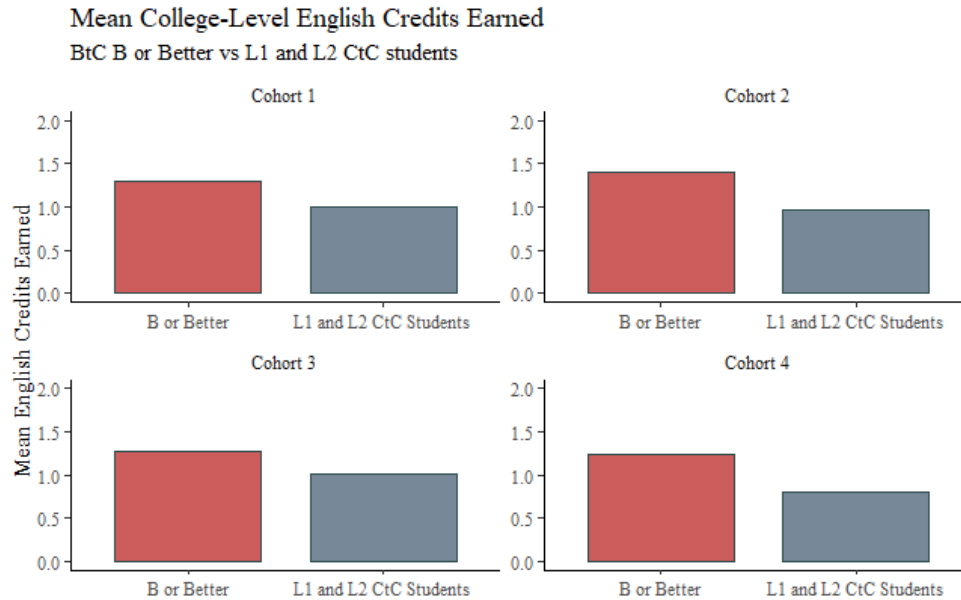


Figure 18

Figure 39 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 four 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 10. Group sizes for Figure 31

Group	Cohort 1	Cohort 2	Cohort 3	Cohort 4
B or Better Bridge	191	311	245	212
L1 and L2 CtC	2587	1579	1336	1266

Figure 40 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 four cohorts, BtC B or better students earned slightly more college level math credit than non-BtC students. Table 14 shows the group sizes for this analysis.

Mean College-Level Math Credits Earned
 BtC B or Better vs L1 and L2 CtC students

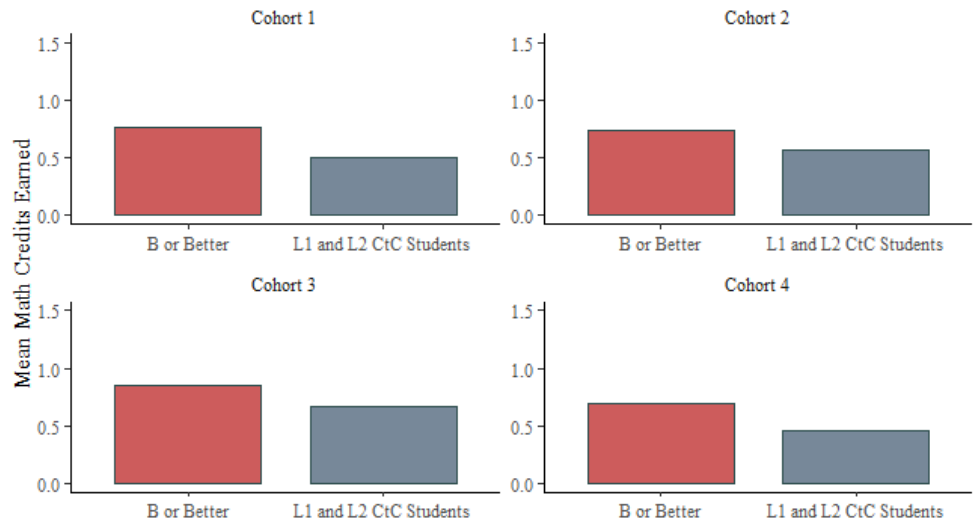


Figure 19

Table 11. Group sizes for Figure 32

Group	Cohort 1	Cohort 2	Cohort 3	Cohort 4
B or Better	161	299	248	559
L1 and L2 CtC	3447	4129	3098	2400