

RESEARCH REPORT

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PRECOLLEGE EDUCATION AND FIRST YEAR OUTCOMES

Note: 2016-17 cohort outcomes in this report currently exclude students who started in spring quarter, because there is not yet a full year of outcomes data for these students. We will update this report when the data is available and that may mean a minor adjustment to some of the 2016-17 cohort rates in this report.

Precollege courses, also known as “developmental” courses, help students prepare for introductory college courses, most often in math and English language arts (reading/writing). Most colleges use entrance exams, prior coursework, or other evaluations to determine whether students should start in a college level or precollege course for math and English. Some students are required to take several levels of precollege courses before they enroll in the respective college level course. Colleges offer precollege courses to help more students complete first year math and English, but a growing body of evidence is showing that precollege coursework may often hinder students more than it helps (see this publication for some examples: [What We Know about Developmental Education Outcomes](#), Community College Research Center, 2014).

In light of the potential inefficacy of precollege education, several states and institutions have begun to implement reforms in precollege placement and curriculum (see this publication for some examples: [Developmental Education: An Introduction for Policymakers](#), Center for the Analysis of Postsecondary Readiness, 2018, pp. 6-8). As one of the more dramatic examples of reform, the Florida legislature passed a bill in 2013 to be implemented by fall 2014, making placement testing and precollege coursework optional in the Florida College System for all students with a high school diploma or serving as active duty military. The early results of this reform have been mixed; more students enrolled directly in college level math and English courses, passing rates in these courses dropped, but the overall percent of students who complete these courses increased (see [Investigating Developmental and College-level Course Enrollment and Passing Before and After Florida’s Developmental Education Reform](#), Regional Education Laboratory Southeast, 2016). Other states and institutions have implemented similar changes, often combining efforts to start more students in college level courses with efforts to provide additional support services to increase the likelihood of success.

Colleges in the Washington community and technical college system have also been implementing reforms in precollege placement and curriculum. Some of the impact of these reforms will show in the outcomes in this report. Precollege education is a significant part of the colleges’ efforts to provide open access to postsecondary education. During the 2016-17 school year, Washington community and technical colleges enrolled 54,548 students in precollege math and English courses. Most enrolled in precollege math (84 percent of precollege students in 2016-17), and many enrolled in precollege English (31 percent of precollege students in 2016-17, including an overlap of 15 percent enrolled in both math and English). As a significant portion of enrollments at the colleges and a potential barrier for students, it is important for the system to continue to monitor progress in relation to precollege coursework.

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About this report

This report provides a summary of precollege enrollment, participation rates, and first year outcomes for students enrolling in the Washington community and technical colleges. Note that colleges have offered precollege courses in various subjects (e.g., career exploration, workplace basics, English language acquisition), but this report will focus on courses in precollege math and English. For simplicity, precollege courses in reading, writing, and coordinated reading/writing are referred to collectively as precollege English. Most precollege English enrollments are in writing or coordinated reading/writing. Note that a broader definition of “precollege” courses could include Basic Education for Adults programs, which also teach foundational skills in reading, writing, math, technology and English language. These programs also aim to help students prepare for college level work, but are not the focus of this report.

Prior precollege education reports have focused on the percent of recent high school graduates who enrolled in precollege math or English courses during their first year at college (see the Role of Precollege reports on the [Precollege Education Research Reports page](#), SBCTC, April 2012 and December 2012). The Education Research and Data Center (ERDC) now regularly updates similar metrics in their [High School Feedback Reports](#) (see page 4). The percent of all students enrolling in precollege courses is a helpful metric for quickly assessing the number of recent high school graduates that enroll in precollege courses. However, as colleges implement more changes to precollege placement and curriculum, it is helpful to break this metric out into two parts: 1) the percent of students enrolling in the subject (math or English), and 2) the percent of subject enrollees who started in a college level course. Breaking the metric apart makes it easier to assess if precollege enrollment rates are changing due to enrollment, placement, or a combination of both. It is also important to track the immediate goal of precollege courses: to help more students successfully complete their first college level course in math or English. This report will thus focus on these metrics related to precollege education:

- Enrollment – the percent of all students who enrolled in a precollege or college level course in the subject (math or English).
- Placement – the percent of subject enrollees who started in a college level course.
- Completion – the number and percent of subject enrollees who completed a college level course.

Prior precollege education reports have focused on records of Washington high school graduates matched to college records by ERDC. Using the ERDC data match requires researchers to wait until final data has been collected and processed from all of the high schools and community and technical colleges. In this report, we have used only the college records to use outcomes that colleges can track closer to real-time. This report will focus on recent high school students who enrolled with the intent to transfer to a four-year institution or complete a workforce program. We identified recent high school students as all students under age 21 who were not dual credit high school students, international students, or students with prior college credits. We have reported outcomes by annual cohorts based on the first quarter a student enrolled in an academic transfer, workforce, or precollege course. Most of this report will focus on outcomes met within the first year of enrollment to use data from more recent cohorts of students and to focus on timely completion of math and English.

Note that precollege courses serve students from a wide variety of educational backgrounds. Fifty-three percent of precollege students in 2016-17 were 22 or older, and many precollege students have prior college experience. Recent high school students were selected as a more homogenous group of interest to use as a sample in this report to discuss the relative trends in math and English enrollment, placement, and completion.

Key Findings

Math and English Enrollment

- Enrollment rates have been consistent over the past five years for recent high school students in transfer and workforce programs, with an average of 70 percent enrolling in math (precollege or college level) and 75 percent enrolling in English (precollege or college level) in their first year.
- Enrollment rates have been similar across demographic groups. One exception is that students receiving need-based aid have been more likely to enroll in math (79 percent compared to 65 percent of other students) and English (82 percent compared to 71 percent of other students).

Math and English Placement

- The percent of recent high school math enrollees starting in college level math has increased by 8 percent over the past five years (from 22 percent of 2012-13 cohort to 30 percent of 2016-17 cohort). A large majority of students enrolling in college level math (70 percent) are still starting out in a precollege math course. The percent of recent high school English enrollees starting in college level English has increased by 10 percent over the past five years (from 56 percent to 66 percent).
- There are large gaps in college level placement rates for the select demographics (gaps between 8 and 18 percent). Female students, historically underserved students of color (students identifying as Black, Hispanic, Native American, or Pacific Islander), first generation students (students who reported that their parent(s) had not finished college), and students receiving need-based aid were less likely to start at college level in math. Historically underserved students of color, first generation students, and students receiving need-based aid were also less likely to start at college level in English.

Math and English Completion

- Completion rates have also shown improvement. The percent of recent high school math enrollees completing a college math course in their first year has increased by 9 percent over the past five years (from 32 percent to 41 percent). The percent of recent high school English enrollees completing a college English course in their first year has increased by 6 percent over the past five years (from 67 percent to 73 percent). In aggregate, more students starting in college level courses can primarily explain the improvements in course completion rates for math and English.
- The gaps in completion rates are similar to the gaps in placement rates for the select demographics. One exception is that female students have relatively high completion rates compared to their placement rates in math and English. Colleges should explore how placement practices may be having an impact on the varying placement rates between female and male students.
- Completion rates have been mostly consistent within the different levels of placement. Starting more students in college level courses has not had a negative impact on course completion rates over the past five years. It is likely that colleges could continue to place even more students in college level math and English and continue to see similar completion rates in these courses. These findings represent aggregate system numbers, so individual colleges should assess how their own placement rates and completion rates compare to other colleges in the system to assess how many more students they might benefit by placing into college level courses or courses closer to college level.

It is not the intent in this report to oversimplify math and English placement. Students come to the colleges with varying levels of academic preparation and there is the potential concern of placing too many students in college level courses without adequate preparation and supports for students to be successful in these courses. Important in these findings and other research is the idea that students can face just as many barriers in a precollege sequence (or more) than they would experience directly enrolling in college level math and English. Colleges have seen improvement in math and English placement and completion rates over the past five years. Colleges will likely continue to see improvements, and can save students time and money, by helping more students from varying levels of academic preparation to successfully start in college level math and English.

Enrollment

Enrollment in the subject is the first step toward completing a college level math or English course. Enrollment in math or English can also be an important outcome on its own, because many students will avoid these subjects by waiting to enroll or by enrolling in short certificate programs that do not require math or English. Short certificate programs that do not require math or English generally have poorer employment outcomes and provide fewer options for further education relative to longer programs in the same career fields (see [Labor Market Results of Workforce Education Students](#), SBCTC, August 2015). Enrollment includes enrollment in a precollege or college level course in the subject.

Precollege or College Level Math Enrollment

Figure 1 shows the overall trend in percent of recent high school students who enrolled in math in their first year. This includes students enrolling in a precollege or college level math course within four quarters of their first enrollment in any precollege or college level courses. The percent enrolling in math in their first year has stayed close to 70 percent for the past five years. On average, an additional 5 percent of students will enroll in the second year after enrolling (close to 75 percent total within two years), and an additional 3 percent in the third year (close to 78 percent total within three years). The large majority of students who are going to enroll in math will enroll in their first year.

Figure 1. Percent of students who enrolled in precollege or college level math in their first year

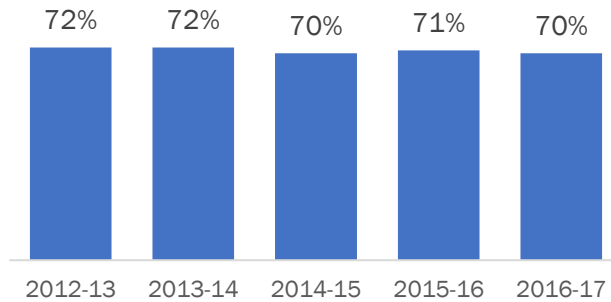
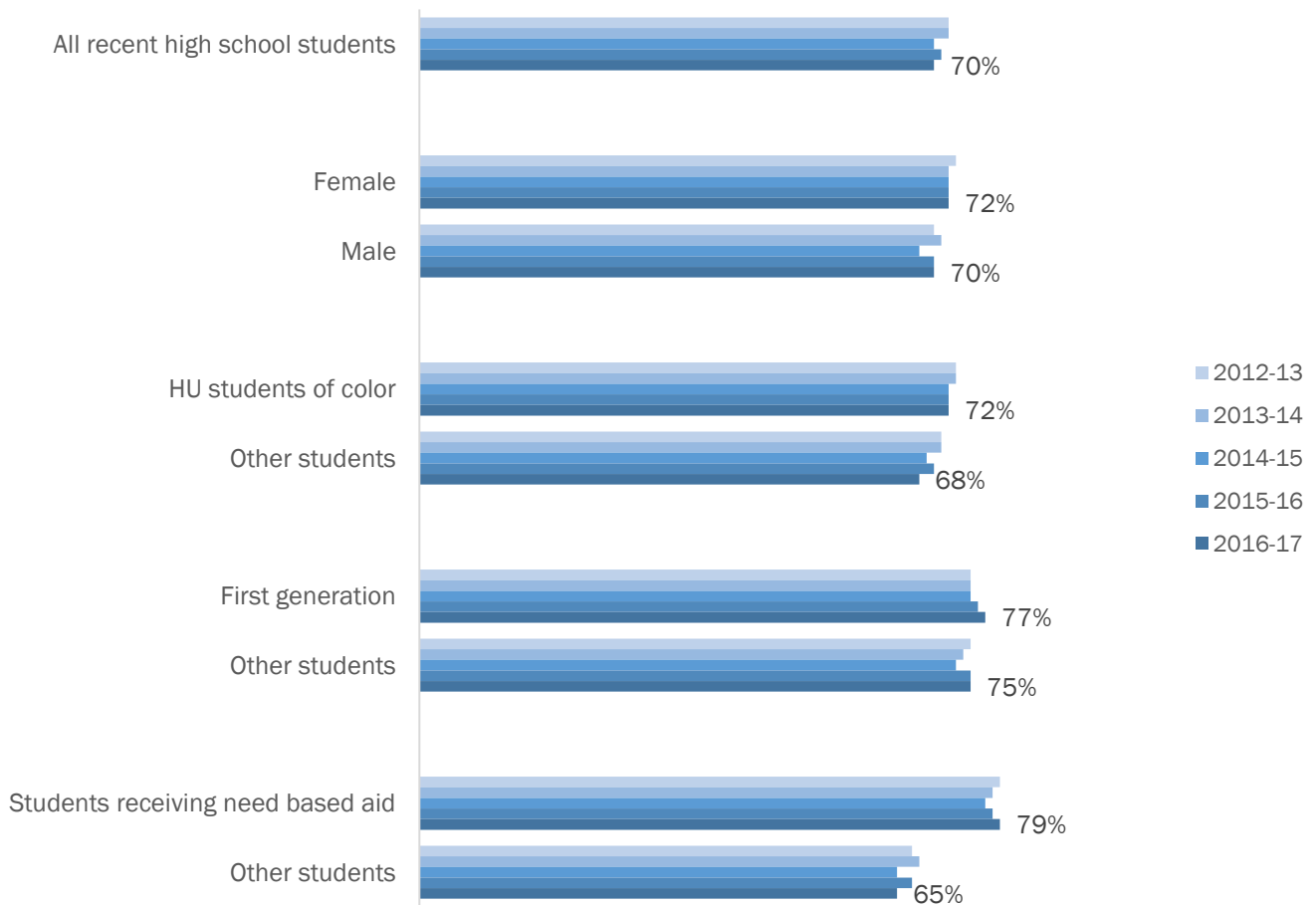


Figure 2 shows math enrollment by select demographics. Female students were slightly more likely to enroll in math (72 percent compared to 70 percent of male students from the 2016-17 cohort). Historically underserved students of color (“HU students of color” in the chart; students identifying as Black, Hispanic, Native American, or Pacific Islander) were also slightly more likely to enroll in math (72 percent compared to 70 percent of other students). Both the first generation students (students who reported that their parent(s) had not finished college) and other students (students who reported that at least one of their parents had finished college) were more likely to enroll in math (77 percent of first generation and 75 percent of other students). Note that the first generation comparison only includes students who provided parent education information on a financial aid application form (FAFSA), so the higher rate of math enrollment for both groups suggests a higher rate of math enrollment for students who completed a FAFSA. This pattern is similar to the last comparison, showing that students who received need-based aid were more likely to enroll in math (79 percent compared to 65 percent of other students). Overall, the enrollment patterns are mostly similar across demographic groups. Receiving need-based aid was an important factor related to math enrollment.

Figure 2. Percent of students who enrolled in math in their first year by select demographics



Precollege or College Level English Enrollment

Figure 3 shows the overall trend in percent of recent high school students who enrolled in English in their first year. This includes students enrolling in a precollege or college level English course within four quarters of their first enrollment in any precollege or college level courses. The percent enrolling in English in their first year has stayed close to 75 percent for the past five years, about 5 percent above the percent of students enrolling in math in their first year. On average, an additional 5 percent of students will enroll in the second year after enrolling (close to 80 percent total within two years), and an additional 1 percent in the third year (close to 81 percent total within three years). The large majority of students who are going to enroll in English will enroll in their first year.

Figure 3. Percent of students who enrolled in precollege or college level English in their first year

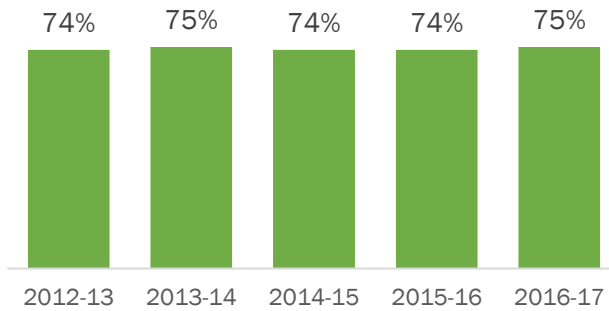
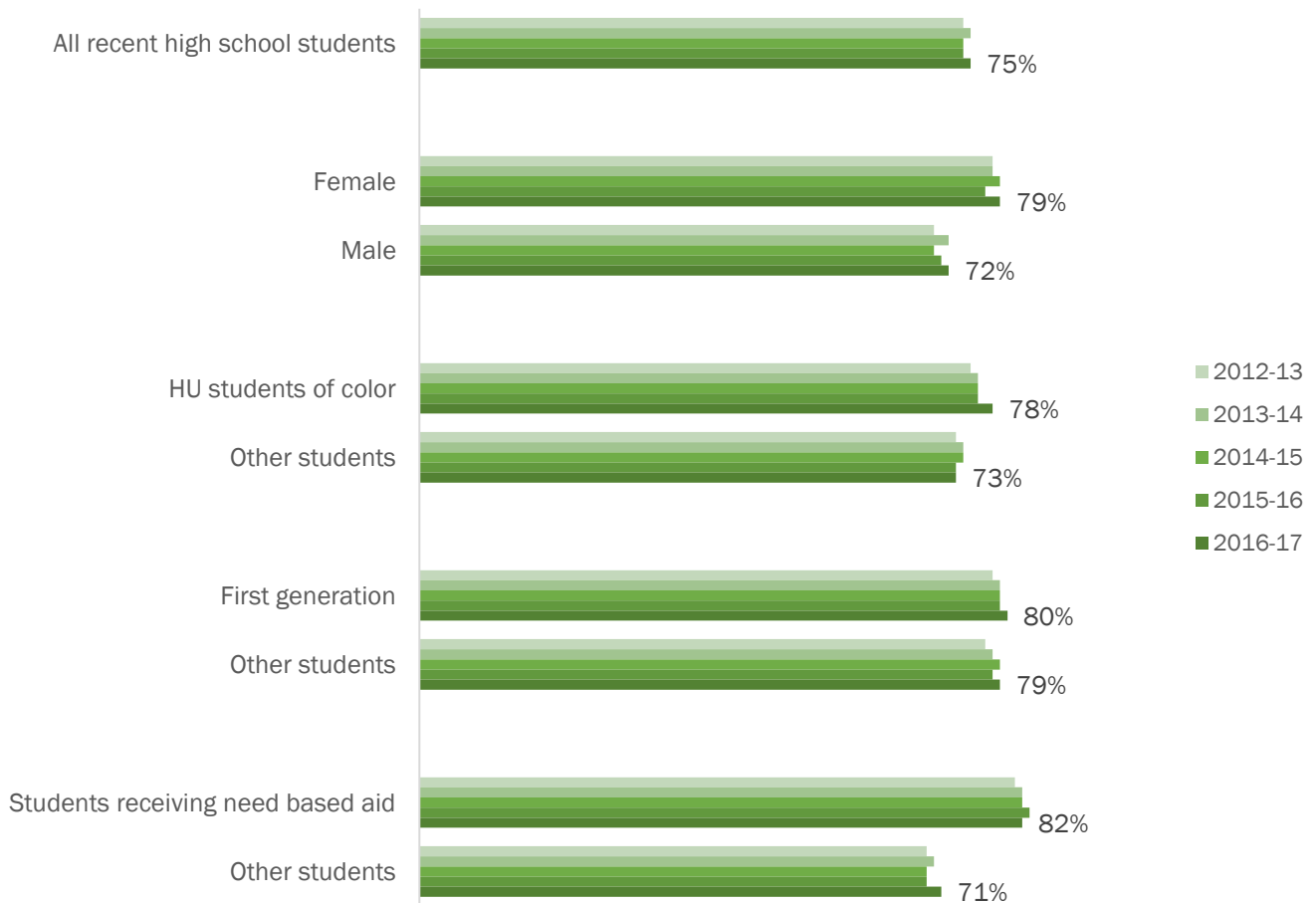


Figure 4 shows English enrollment by select demographics. Female students were more likely to enroll in English (79 percent compared to 72 percent of male students from the 2016-17 cohort). Historically underserved students of color were also more likely to enroll in English (78 percent compared to 73 percent of other students). Both the first generation students and other students were more likely to enroll in English (80 percent of first generation and 79 percent of other students). This is similar to math, suggesting that students who completed a FAFSA were more likely to enroll in English. Also similar to math, students who received need-based aid were more likely to enroll in English (82 percent compared to 71 percent of other students). English enrollment has had some more variability between students groups, but still relatively consistent with English enrollment for all the listed groups above 70 percent in the first year.

Figure 4. Percent of students who enrolled in English in their first year by select demographics



Placement

A common metric of interest is the “remediation rate” or percent of students who are placed into precollege courses for a given subject area. With varying methods of placement at the different colleges, the most reliable way to track precollege placement is by reviewing transcript records to check which students enrolled in precollege courses. The limitation of this method is that it does not provide placement information for students who have not enrolled in any precollege or college level courses for a given subject area. Considering this limitation, it is helpful to consider enrollment in the subject as a separate outcome and to focus placement tracking on those students who have enrolled in the subject. This also helps to consider the separate strategies to address concerns with students not enrolling in the subject versus students enrolling in the subject and not finishing the college level course. In past reports, we have reported placement rates in terms of the percent of students starting in a precollege course. This report will report placement rates in terms of the percent of students starting in a college level course in the subject. This allows for some consistency in reporting across the three key metrics, setting each metric so that an increase in the outcome is generally the goal for students.

Math Placement

Figure 5 shows the overall trend in percent of recent high school math enrollees who started in a college level math course in their first year. The percent of math enrollees starting in college level math has risen 8 percent over the past five years (from 22 percent to 30 percent of math enrollees). These percentages of enrollees starting in college math is consistent for students enrolling in their second or third year after enrolling. The percent of students starting in college level math appears to be moving in a positive direction, but the majority of math enrollees (70 percent) are still starting in a precollege math course.

Figure 5. Percent of math enrollees who started in college level math

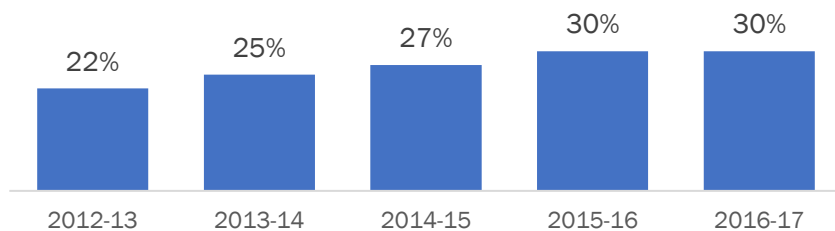
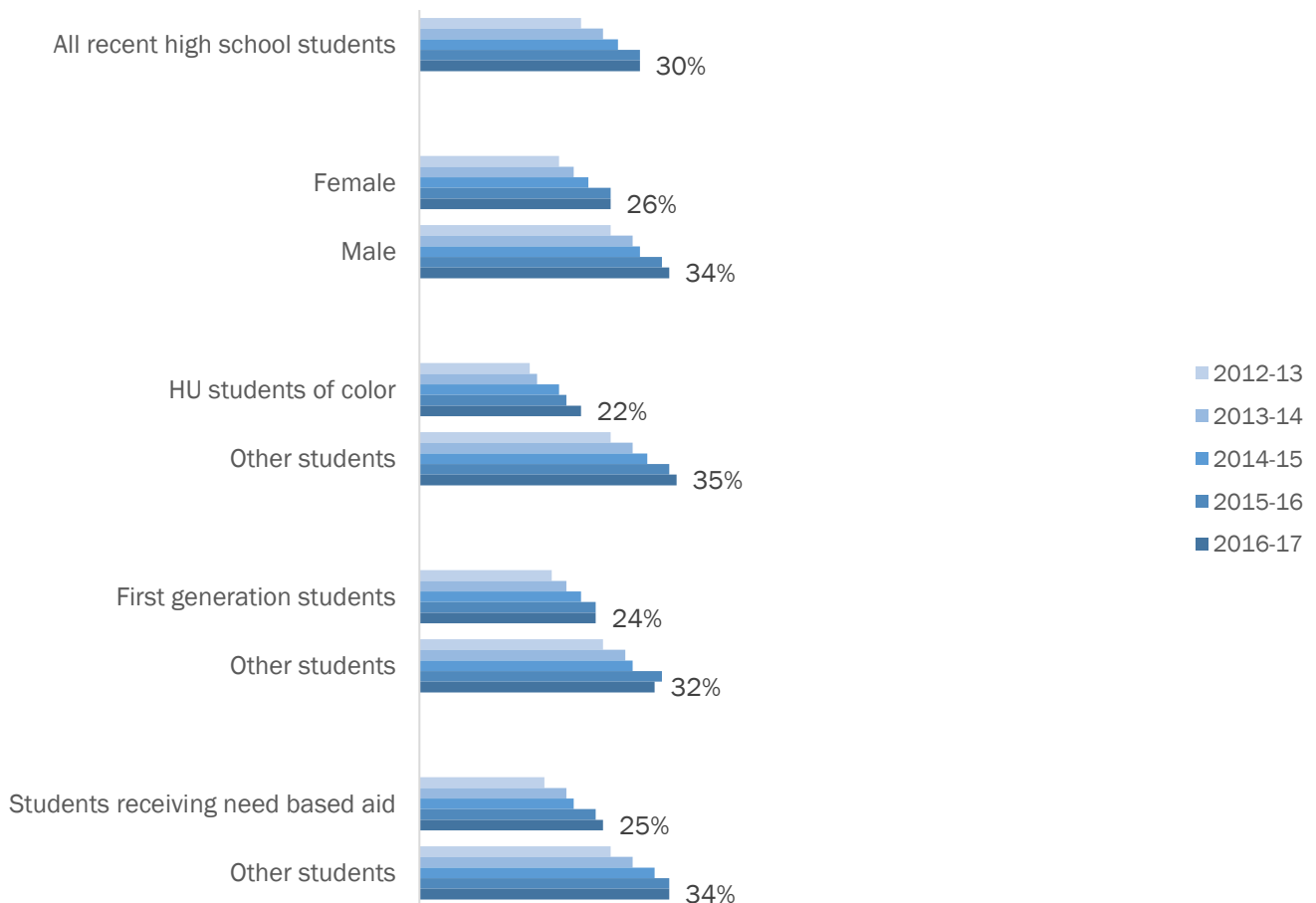


Figure 6 shows math placement by select demographics. Math placement rates vary more between groups of students than we saw for math enrollment rates. Female math enrollees were less likely to start in college level math (26 percent compared to 34 percent of male math enrollees from the 2016-17 cohort). Historically underserved students of color were also less likely to start in college level math (22 percent compared to 35 percent of other students), with similar gaps for first generation students (24 percent compared to 32 percent of other students) and students receiving need-based aid (25 percent compared to 34 percent of other students). Note that each of the listed groups of math enrollees have shown progress over the past five years in terms of more students starting in college level math. It appears, though, that this progress has not served to close gaps in placement rates, and that the groups less likely to start in college level math now have placement rates similar to the other students' placement rates from five years ago.

Figure 6. Percent of math enrollees who started in college level math by select demographics



English Placement

Figure 7 shows the overall trend in percent of recent high school English enrollees who started in a college level English course in their first year. The percent of English enrollees starting in college level English has risen 10 percent over the past five years (from 56 percent to 66 percent of English enrollees). These percentages of enrollees starting in college English is consistent for students enrolling in their second or third year after enrolling. The percent of students starting in college level English appears to be moving in a positive direction similar to math. Most English enrollees are starting in college level English, but a substantial percent of students (34 percent) are still starting in a precollege English course.

Figure 7. Percent of English enrollees who started in college level English

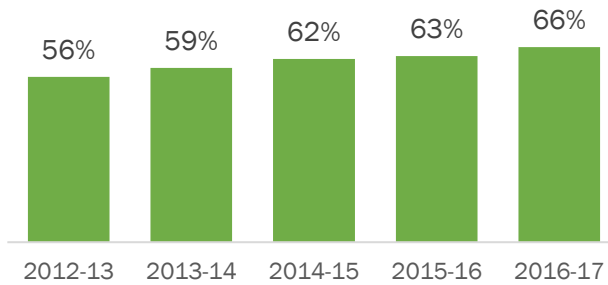
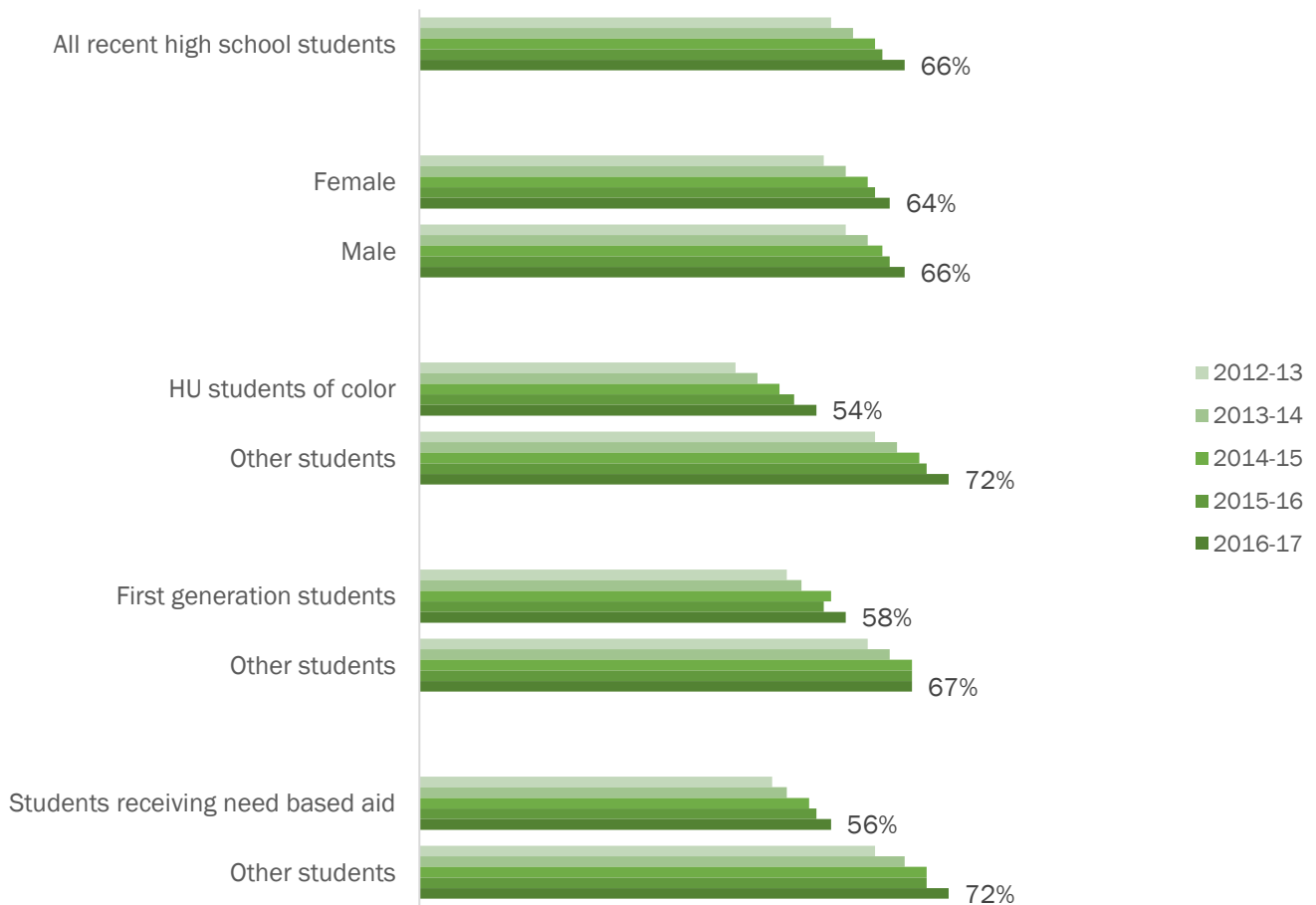


Figure 8 shows English placement by select demographics. English placement rates did not vary as much by gender as math placement rates (64 percent of female English enrollees compared to 66 percent of male English enrollees from the 2016-17 cohort). There were similar patterns in placement rates for the other listed demographics. Historically underserved students of color were less likely to start in college level English (54 percent compared to 72 percent of other students), as well as first generation students (58 percent compared to 67 percent of other students) and students receiving need-based aid (56 percent compared to 72 percent of other students). Similar to math, each of the listed groups of English enrollees have shown progress over the past five years in terms of more students starting at college level, but this progress has not closed gaps in placement rates for the listed groups. The groups less likely to start in college level English now have placement rates closer to the other students' placement rates from five years ago.

Figure 8. Percent of English enrollees who started in college level English by select demographics



Completion

The immediate goal of precollege courses is to help more students successfully complete their first college level courses in math or English. Similar to placement rates, it is helpful to keep enrollment in the subject as a separate issue and track completion of a college level course as a percent of only those students who enrolled in the subject. As the key outcome for precollege courses, it is also important to track the total number of students that are completing a college level course in the subject. Overall enrollment trends have a large impact on the number of students completing a college level course in the subject, but it is a helpful metric in determining if improvements in subject enrollment, placement, and completion rates are translating into actual improvements in the numbers of students finishing college level math and English courses.

Math Completion

Figure 9 shows the overall trend in percent of recent high school math enrollees who completed a college math course in their first year. The percent of math enrollees completing a college math course has risen 9 percent over the past five years (from 32 percent to 41 percent of math enrollees). The students completing a college math course in their first year includes most of the students starting in college level math (approximately 85 percent will finish a college math course in the first year), and some of the students who started in precollege math (approximately 23 percent will finish a college math course in the first year). On average, an additional 12 percent of students will complete a college math course in their second year (close to 53 percent total within two years), and an additional 5 percent in the third year (close to 58 percent total within three years). These additional students finishing a college math course in their second or third year primarily represent students who started in precollege math and have taken a longer time to finish their precollege math sequence and the first college math course. After the third year, closer to 90 percent of students starting in college level math will have finished a college math course and closer to 45 percent of students starting in precollege math will have finished a college math course. The additional percent of students completing a college math course tapers off quickly after a couple of years, with most of the precollege students who are going to finish a college math course doing so in the first year or two.

In terms of numbers of students, the total number of new recent high school students enrolling has dropped over the past few years from a high of 19,548 students in 2013-14 to 17,004 students in 2016-17. Improvement in math placement and completion rates has meant that the number of students finishing a college math course in their first year has not dropped as dramatically, from 4,889 students in 2013-14 to 4,668 students in 2016-17.

Figure 9. Percent of math enrollees who completed a college math course in their first year

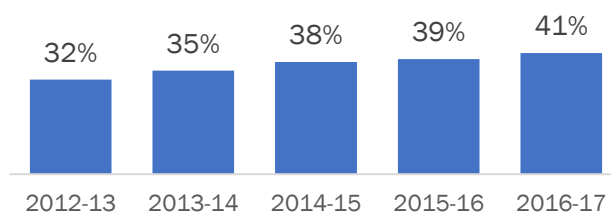
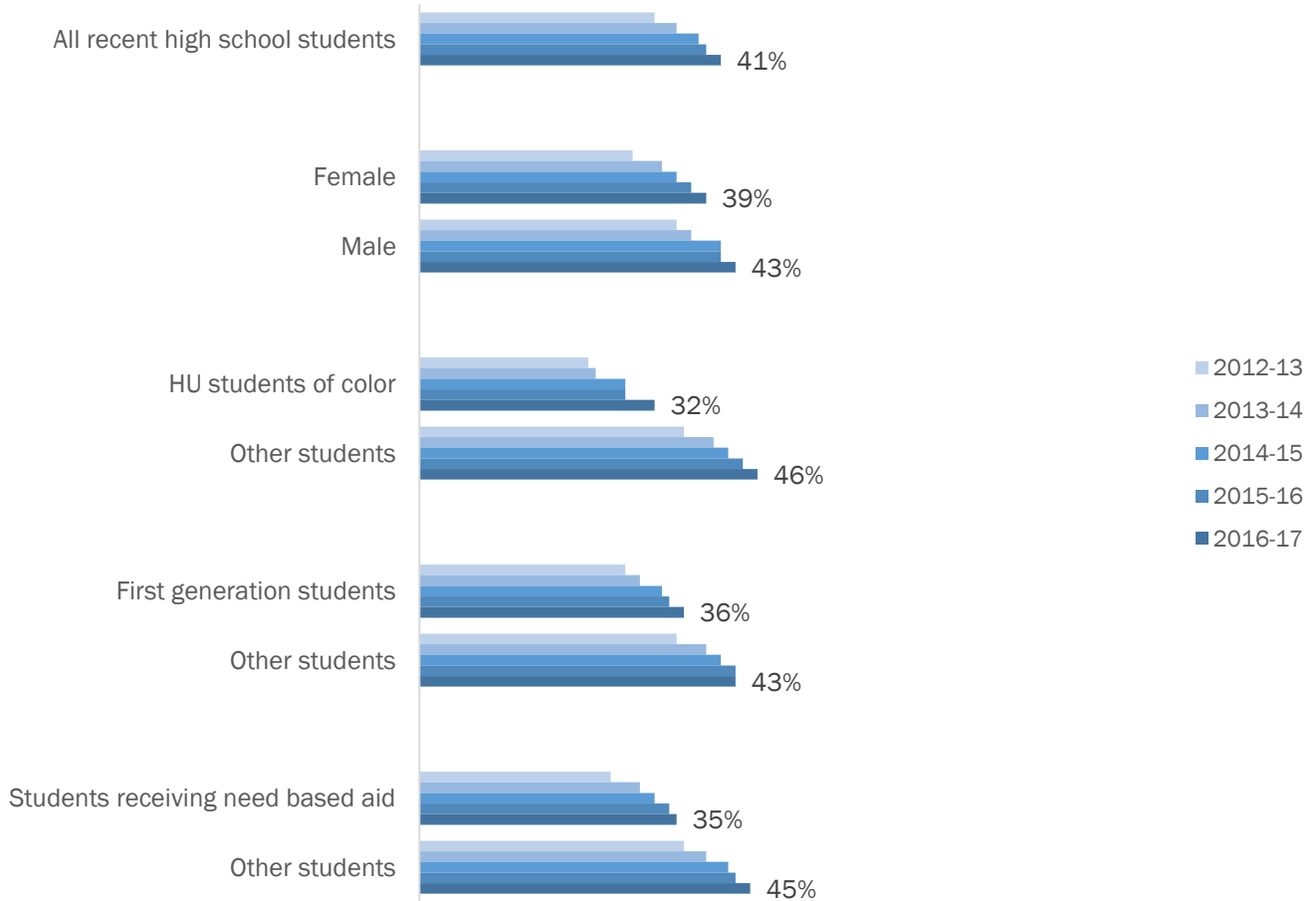


Figure 10 shows math completion by select demographics. Female math enrollees were less likely to complete a college math course in their first year (39 percent compared to 43 percent of male math enrollees from the 2016-17 cohort). Historically underserved students of color were also less likely to complete a college math course in their first year (32 percent compared to 46 percent of other students), with similar gaps for first generation students (36 percent compared to 43 percent of other students) and students receiving need-based aid (35 percent compared to 45 percent of other students). The relative gaps in college math completion are similar to the relative gaps in math placement. Each of the listed groups of math enrollees have shown progress over the past five years in terms of more students completing a college math course in their first year, but this progress has not closed the gaps in college math completion rates.

Figure 10. Percent of math enrollees who completed a college math course by select demographics



English Completion

Figure 11 shows the overall trend in percent of recent high school English enrollees who completed a college English course in their first year. The percent of English enrollees completing a college English course has risen 5 percent over the past five years (from 67 percent to 72 percent of English enrollees). The students completing a college English course in their first year includes most of the students starting in college level English (approximately 85 percent will finish a college English course in the first year), and almost half of the students who started in precollege English (approximately 46 percent will finish a college English course in the first year). Relative to the precollege math students, the precollege English students are more likely to finish a college course in their first year. This is due in part because they are more likely to start one English course below college level English, whereas many of the precollege math students will place two or more levels below college level math. On average, an additional 5 percent of English enrollees will complete a college English course in their second year (close to 78 percent total within two years), and an additional 2 percent in the third year (close to 80 percent total within three years). Most of the English enrollees who are going to complete a college English course do so in their first year.

In terms of numbers of students, the total number of new recent high school students completing a college English course in their first year has dropped from a high of 10,198 in 2013-14 to 8,960 in 2016-17. Similar to math, improvements in English placement and completion rates have kept this number from dropping at a rate similar to the overall drop in enrollment. The drop in the number of college English completers has been larger than the drop in college math completers, though, because a much larger number of students have been completing a college English course in their first year.

Figure 11. Percent of English enrollees who completed a college English course in their first year

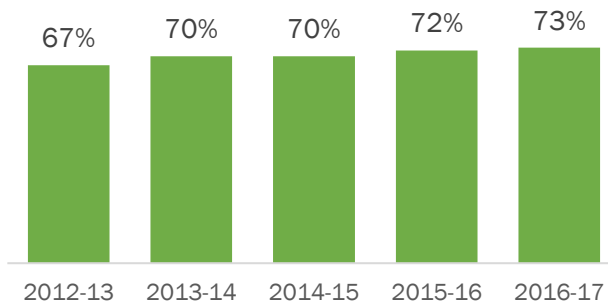
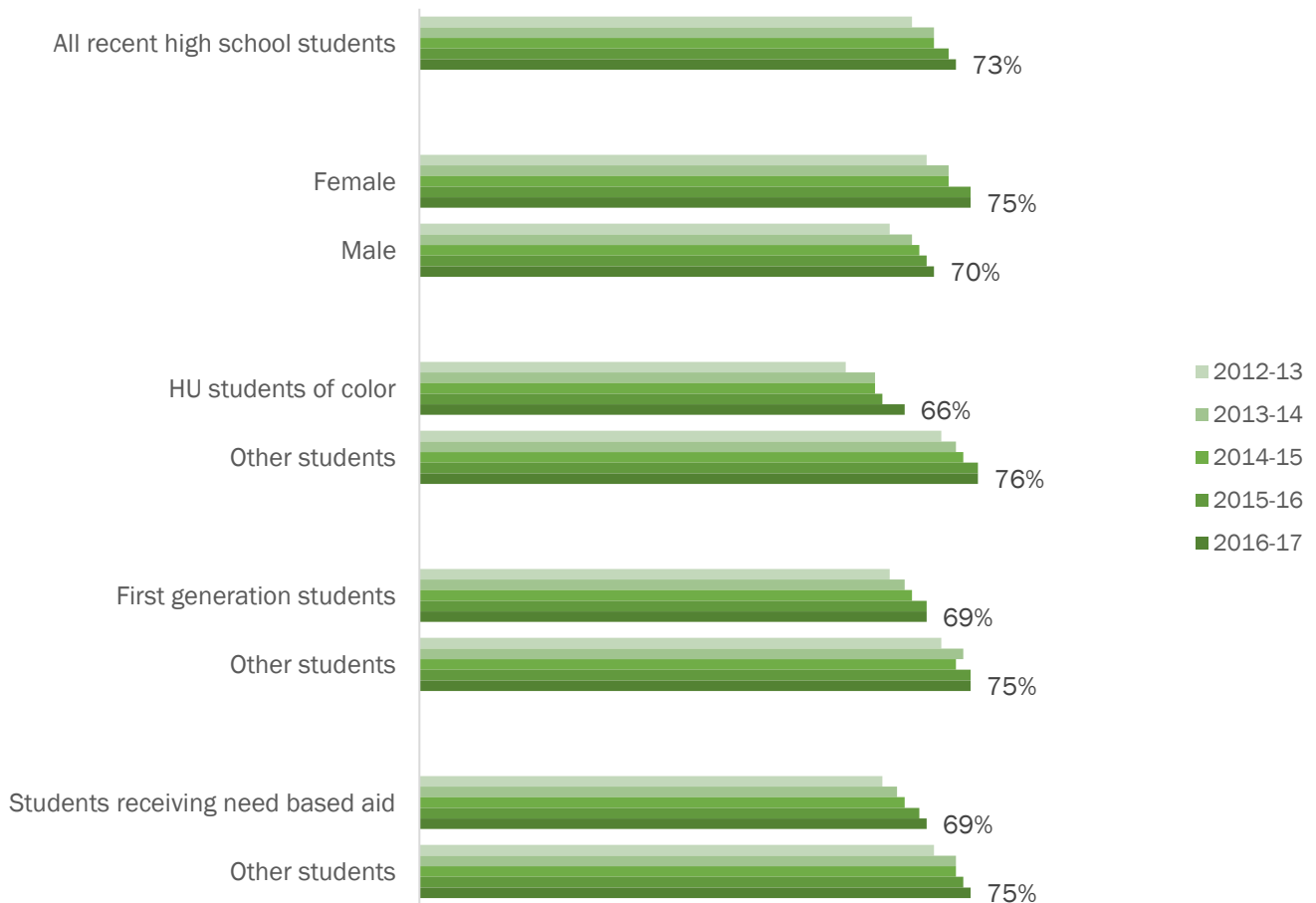


Figure 12 shows English completion by select demographics. Unlike the pattern seen with math completion, female English enrollees were more likely to complete a college English course in their first year (75 percent compared to 70 percent of male English enrollees from the 2016-17 cohort). Similar to math, historically underserved students of color were less likely to complete a college English course in their first year (66 percent compared to 76 percent of other students), as well as first generation students (69 percent compared to 75 percent of other students) and students receiving need-based aid (69 percent compared to 75 percent of other students). The relative gaps in college English completion are similar to the relative gaps in English placement, except for the comparison by gender – female students were more likely to complete a college English course in their first year despite being slightly less likely to start in a college English course. Each of the listed groups of English enrollees have shown progress over the past five years in terms of more students completing a college English course in their first year, but this progress has not closed the gaps in college English completion rates.

Figure 12. Percent of English enrollees who completed a college English course by select demographics



Completion by Placement

The patterns in math and English completion over the past five years have generally been similar to the patterns in math and English placement. In aggregate, it appears that the increased percent of students completing a college level course in their first year (or their second or third year) can largely be explained by the increased percent of students starting in a college level course in the subject (or in a course closer to college level in math). This suggests that continuing to place even more students in college level courses could mean more students finishing college level math and English courses in their first year.

Math Completion by Placement

Figure 13 shows the overall trends in percent of recent high school math enrollees who completed a college math course in their first year by their level of placement: starting in a college level course, a precollege course one level below college level, or a precollege course two or more levels below college level. The percent of students completing a college math course has been mostly consistent within the different levels of placement. On average, 85 percent of students starting at college level will complete a college level math course in their first year, 45 percent of students starting one level below, and 13 percent of students starting two or more levels below. It appears that the increased percent of students starting at college level has not had a negative effect on completion rates. It also appears that the improvement in overall math completion rates in the first year is primarily explained by the changes in placement and not by changes in completion rates within the levels of placement. This does not necessarily mean that individual colleges have not seen progress in completion rates for students within the different levels of placement. These aggregate trends show that on average placement changes have had the more significant impact on the percent of students completing a college math course in their first year. If you extend the outcomes out to the third year, closer to 90 percent of students starting at college level will have completed a college math course, 65 percent of students starting one level below, and 35 percent of students starting two or more levels below.

Figure 13. Percent of math enrollees who completed a college math course by placement

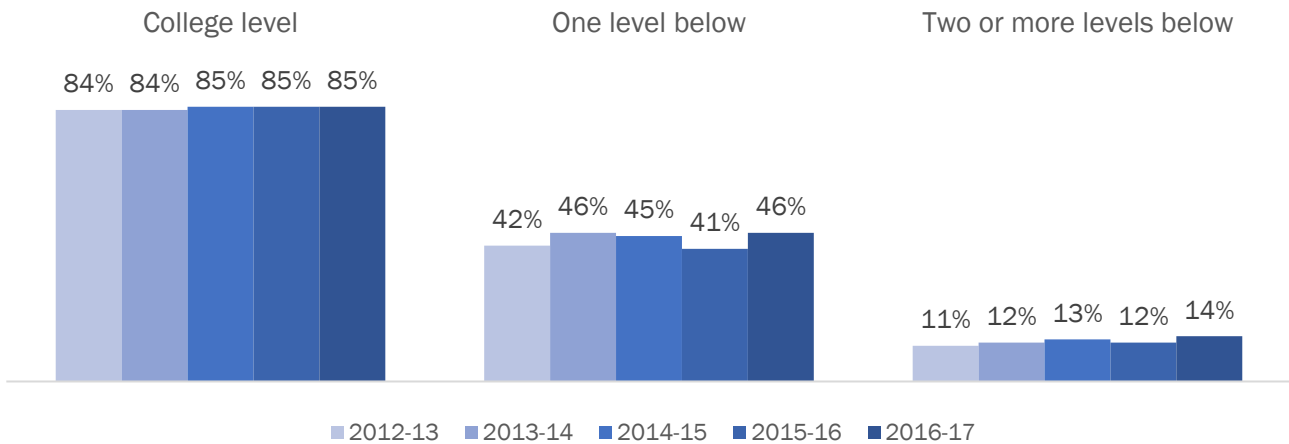
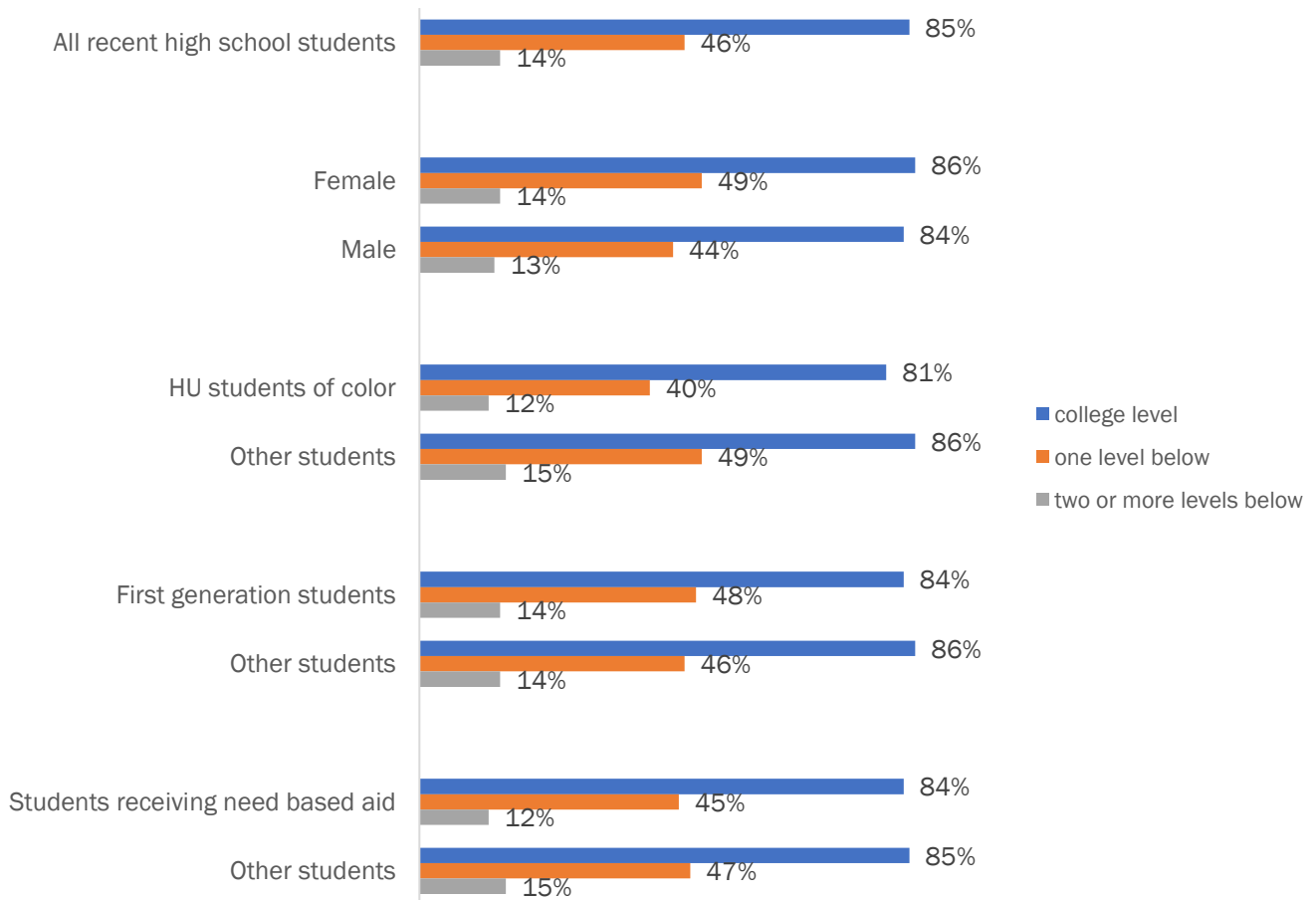


Figure 14 shows the percent of recent high school math enrollees completing a college math course in their first year by level of placement for select demographics. The numbers shown are for the 2016-17 cohort, but similar to the overall trends these completion rates within placement levels have been mostly consistent over the past five years. Female math enrollees were slightly more likely to complete a college math course at each level of placement (85/49/14 percent compared to 84/44/13 percent of male math enrollees). Historically underserved students of color were less likely to complete a college math course at each level of placement (81/40/12 percent compared to 86/49/15 percent of other math enrollees). Completion rates were more similar by first generation and need-based aid status. Note that the completion rates within placement levels across the demographic groups vary less than the overall completion rates shown in figure 10. This supports the idea that placement practices have had a large impact on the likelihood of students to complete a college level course in math.

Figure 14. College math completion by placement for select demographics (2016-17 cohort)



English Completion by Placement

Figure 13 shows the overall trends in percent of recent high school English enrollees who completed a college English course in their first year by their level of placement: starting in a college level course, a precollege course one level below college level, or a precollege course two or more levels below college level. The percent of students completing a college English course has been mostly consistent within the different levels of placement. On average, 86 percent of students starting at college level will complete a college level English course in their first year, 55 percent of students starting one level below, and 36 percent of students starting two or more levels below. Similar to math, it appears that the increased percent of students starting at college level has not had a negative effect on completion rates and that the improvement in overall English completion rates in the first year is primarily explained by the changes in placement. If you extend the outcomes out to the third year, closer to 90 percent of students starting at college level will have completed a college English course, 65 percent of students starting one level below, and 53 percent of students starting two or more levels below.

Figure 15. Percent of English enrollees who completed a college English course by placement

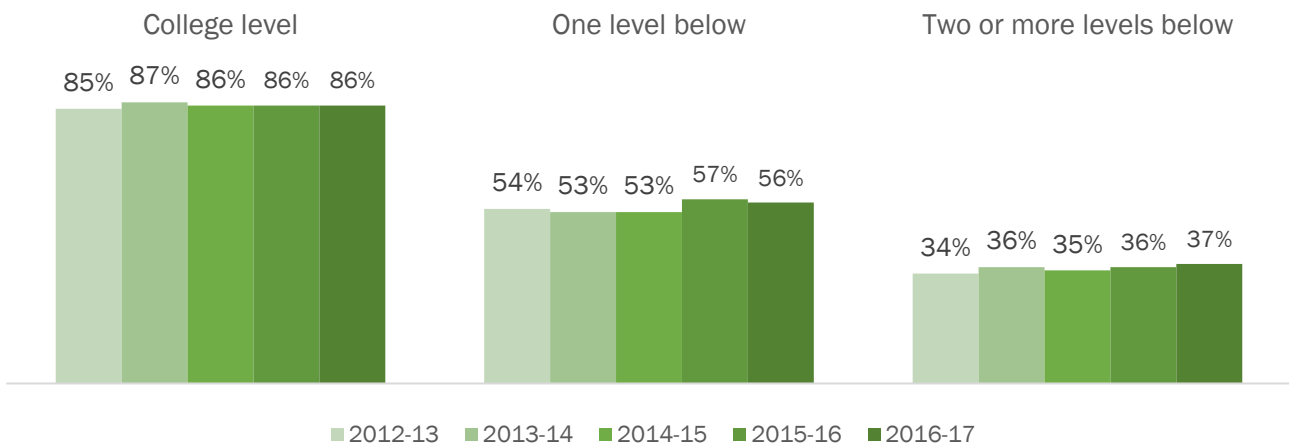
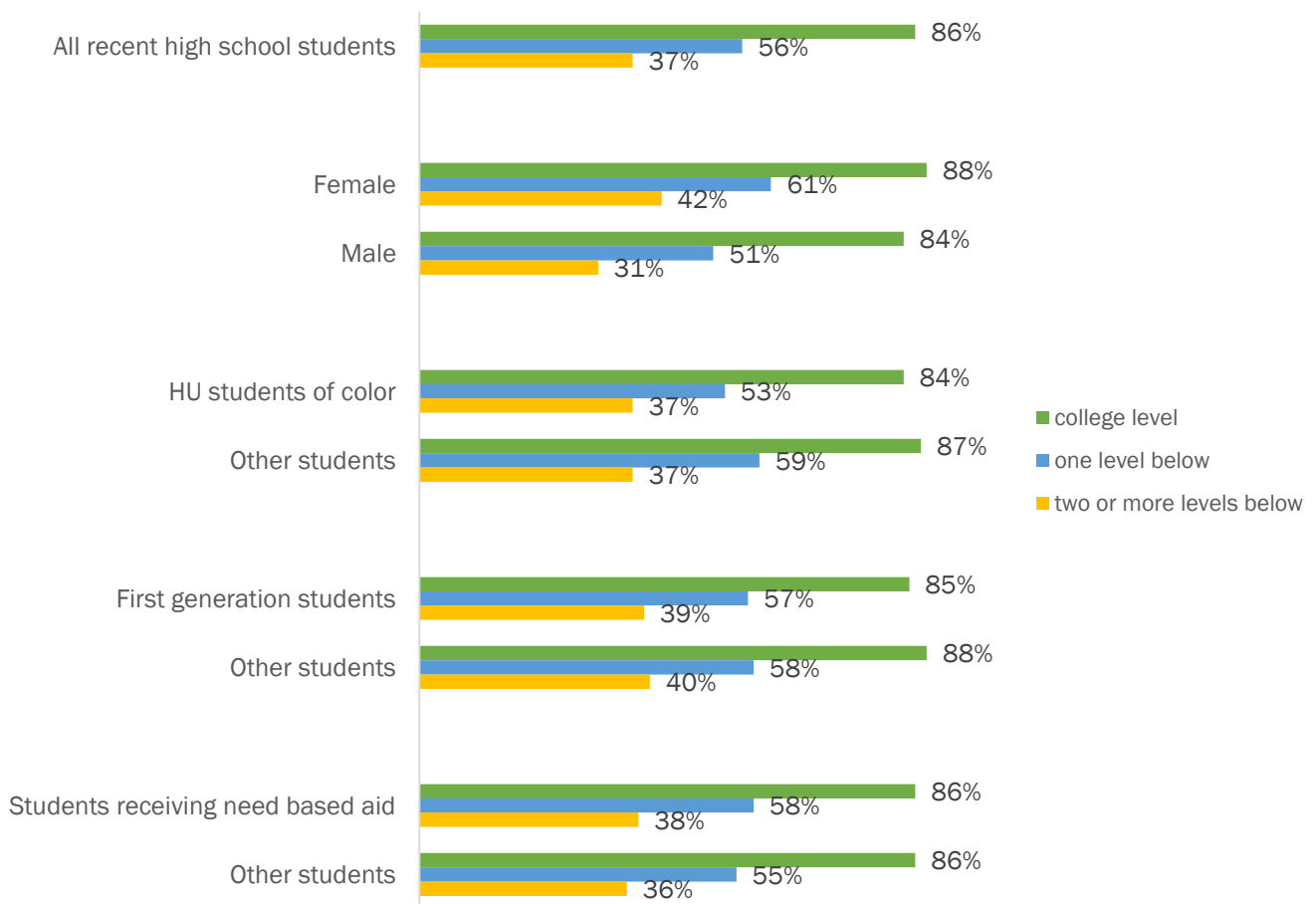


Figure 16 shows the percent of recent high school English enrollees completing a college English course in their first year by level of placement for select demographics. Female English enrollees were more likely to complete a college English course at each level of placement (88/61/42 percent compared to 84/51/31 percent of male English enrollees). Historically underserved students of color were slightly less likely to complete a college English course at college level or one level below (84/53/37 percent compared to 87/59/37 percent of other English enrollees). Completion rates were more similar by first generation and need-based aid status. Note that the completion rates within placement levels across the demographic groups vary less than the overall completion rates shown in figure 12. This supports the idea that placement practices have had a large impact on the likelihood of students to complete a college level course in English.

Figure 16. College English completion by placement for select demographics (2016-17 cohort)



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