

College Board Reported Participation and Performance Trends of Advanced Placement Exams for Arizona Students from 2008 to 2019



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A Research Analysis White Paper
ASU Helios Decision Center for Educational Excellence

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Executive Summary

This white paper presents findings and trends of Advanced Placement (AP) participation and performance for Arizona students from 2008 to 2019. Publicly available AP participation and performance data from College Board and high school enrollment data from the National Center for Education Statistics (NCES) were used in the analysis. Passing an AP exam was considered to be a score of three or higher with a maximum score of five. Participation and performance indicators were calculated based on high school enrollment reported by NCES.

This is one of a trio of reports on Advanced Placement in Arizona. This report uses publicly available College Board data. The second report analyzes the Advanced Placement data archived at the Arizona Department of Education. The third is a study of the impact of AP taking on college going using data from five districts.

The first section of this report presents findings from an analysis of participation and performance of Arizona students compared to those from across the United States. Arizona students have increased AP participation and performance and now are comparable to U.S. averages. The number of Arizona students taking AP tests has more than doubled since 2008 (20,000 to 41,000; +102%; U.S. +79%). At the same time, the average AP score for an Arizona student increased 7.8% compared to 2.1% for a U.S. student and the average score is now almost identical to the U.S. average. (AZ 2.69 to 2.90; U.S. 2.85 to 2.91). Most importantly, the percentage of students receiving the passing scores (3, 4, 5) showed a significant increase (AZ +12% to 59.4% passing, U.S. +3%, 59.6% passing) and are now comparable to U.S. averages. Over the last 12 years, the trend of Arizona students is a positive one with more students participating in and achieving higher scores on AP exams.

The second section of this report provides findings from analysis of participation and performance of Arizona students by gender from 2008 to 2019. Consistently across time, male students were underrepresented in the AP test taking population, accounting for approximately 51% of enrolled students but only about 42% of students taking AP exams, as compared to their female peers who account for approximately 49% of enrolled students and 58% of students taking AP exams. While male students were underrepresented in taking AP exams, they outperformed their female peers in terms of performance on AP exams. Both males and females experienced gains in the percent of exams being passed (8% and 6%, respectively); however, the gap between performance ranged between 6.4 and 8.5 percentage points during this same time, with more male students achieving passing scores on their exams compared to female students. Between 2008 and 2019, both genders experienced increases in participation and performance; however, the gap between them in performance remains and does not seem to be decreasing.

The third section of this report provides findings from analysis of participation and performance of Arizona students by ethnicity from 2008 to 2019. All ethnic groups experienced gains, between 1% and 13%, in the percent of students taking AP exams as compared to their

enrollment with the exception of the ethnic classification of Other which includes those students who self-reported as multiracial. While students who self-reported as Hispanic and White became more representative of their high school enrollment within the population of AP test takers, most ethnic groups remained consistent from 2008 to 2019. Students identifying as American Indian/Alaska Native, Black, and Hispanic were underrepresented in students taking AP exams while Asian/Pacific Islanders, Whites, and students identifying as Other were overrepresented. A similar trend existed with regards to performance in that overrepresented ethnic groups had a higher percentage of tests passed while underrepresented groups had a lower percentage of tests passed. There was a shift in which the Hispanic ethnic group became less underrepresented and the White ethnic group became less overrepresented between the 2015 and 2016 AP administrations. Trends between 2008 and 2019 indicate there is still a need for increased opportunity for courses and high caliber instruction in order to achieve representation and performance aligned with Arizona's ethnically diverse student population.

Overall, these findings suggest that while representation and performance improved for Arizona students between 2008 and 2019, not all students within subgroups had similar opportunities and more structural shifts should be considered in order to facilitate equal opportunity for Arizona students. These findings also suggested that programs or policies implemented between 2008 and 2019 may have had an impact on representation and should be further investigated, specifically programs and policies implemented between the 2015 and 2016 AP administrations.

The data utilized for this analysis was limited to those students taking AP exams while enrolled in Grades 9-12. There exists a small percentage of students taking exams prior to these grade levels that were not included in the participation numbers. Additionally, the NCES enrollment data includes students in public schools and public charters while excluding students in private schools. Further analysis at the district/school/student level could provide more insight into the patterns and trends across programs and populations throughout Arizona having implications for the development of future policies and programs.

In addition to AP, many students also choose dual enrollment offerings to receive college credit. There are also International Baccalaureate and other rigorous course programs throughout the state. Student decisions to participate in AP or other rigorous course programs may be dependent upon the offerings available to them. It may be possible that these programs are growing faster than AP or serve different groups of students. To get a full picture of rigorous course taking additional research on these programs would be needed. Without this additional information, this paper only provides part of the picture of rigorous course taking in Arizona and therefore should not be used by itself for policy recommendations.

Introduction

Schools and districts are increasingly being urged to offer rigorous, college level type courses in high school to better prepare students for college. There are a number of ways to accomplish this including College Board Advanced Placement, Dual Enrollment, International Baccalaureate, and Cambridge. The Advanced Placement program is the most well established and implemented of these programs. Additionally, it reports publicly comprehensive data, so this report focuses on Advanced Placement (AP) testing in Arizona between 2008 and 2019.

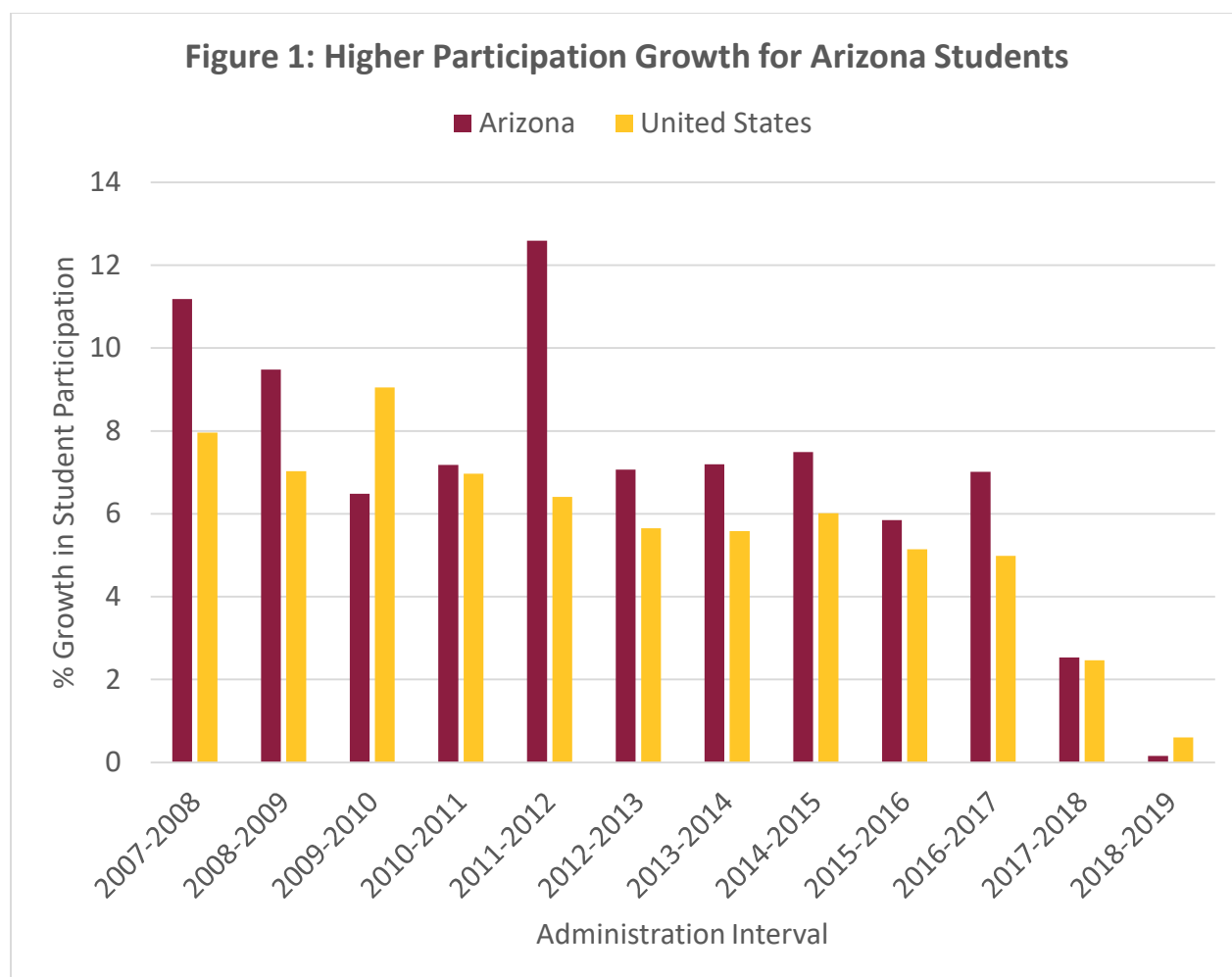
This is the first of a two-part analysis of Advanced Placement in Arizona. This report focuses on AP test taking and the publicly reported data provided by the College Board which includes both public and private schools in Arizona. This data is important because it allows us to track trends over a long period of time with data prepared by the College Board. The companion report will look at student level data on both AP course taking and test taking for students in Arizona's public schools.

Section 1: How are Arizona students performing on AP Exams and how does that compare to students across the United States?

AP test taking and performance has changed significantly from the 2008 AP administration to that in 2019. This section describes those changes overall and puts them in context by comparing Arizona and US trends. More specifically, this section looks at how AP student participation and performance has changed for Arizona students compared to students from across the United States from 2008 to 2019.

Arizona student participation in AP exams is increasing faster than that of US students in general.

Generally, Arizona had higher year over year percentage growth in AP participation compared to that of states across the United States with higher growth in 10 of 12 years of AP administration (Figure 1).



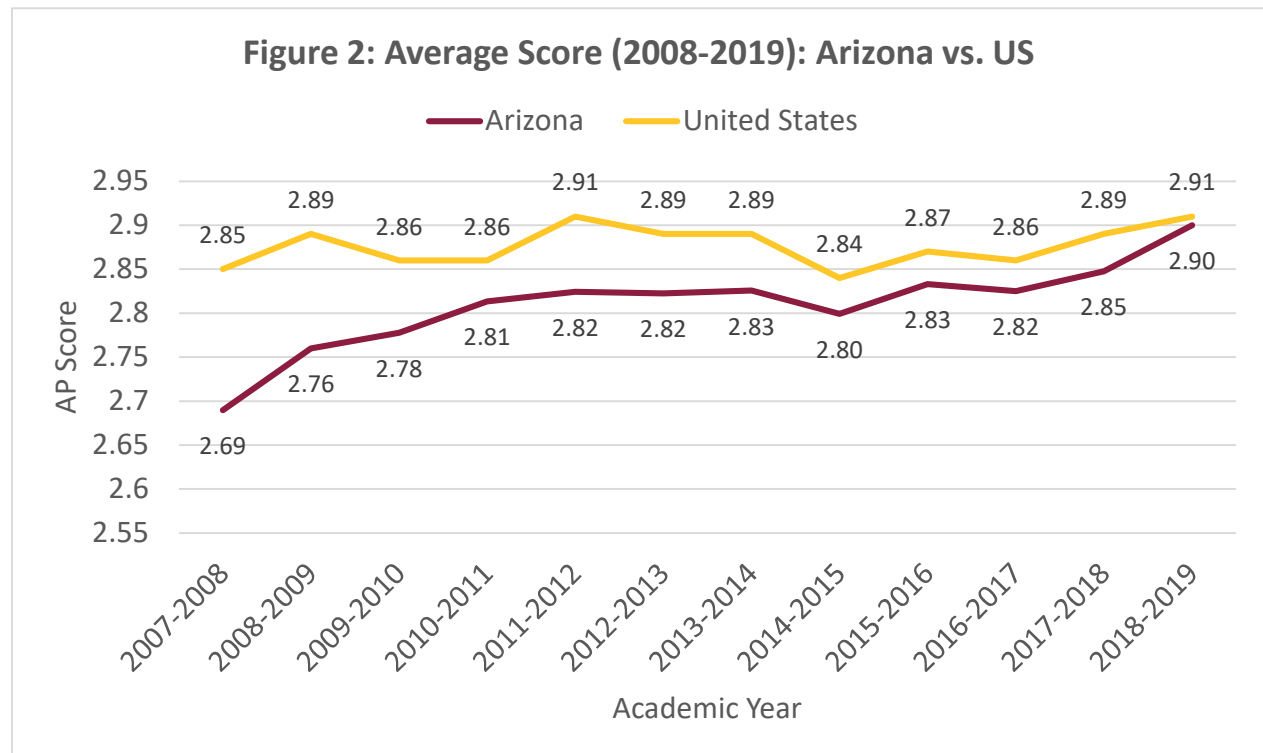
The number of Arizona students participating in AP examinations has more than doubled, a 102% increase, from approximately 20,000 students in 2008 to almost 41,000 students in 2019. In contrast, the number of students across the US taking AP exams has only increased about 79% during this same time period.

It should be acknowledged that the increase in student participation is partly due to Arizona's increase in population since 2008 with high school student enrollment increasing 9.8% from approximately 316,000 to 347,000. However, Arizona's AP test taker population has almost doubled from approximately 6% of high school enrollment in 2008 to over 11% in the 2019 administration. This means that not only are more students participating in AP exams but a higher percentage of our high school population are participating in AP exams.

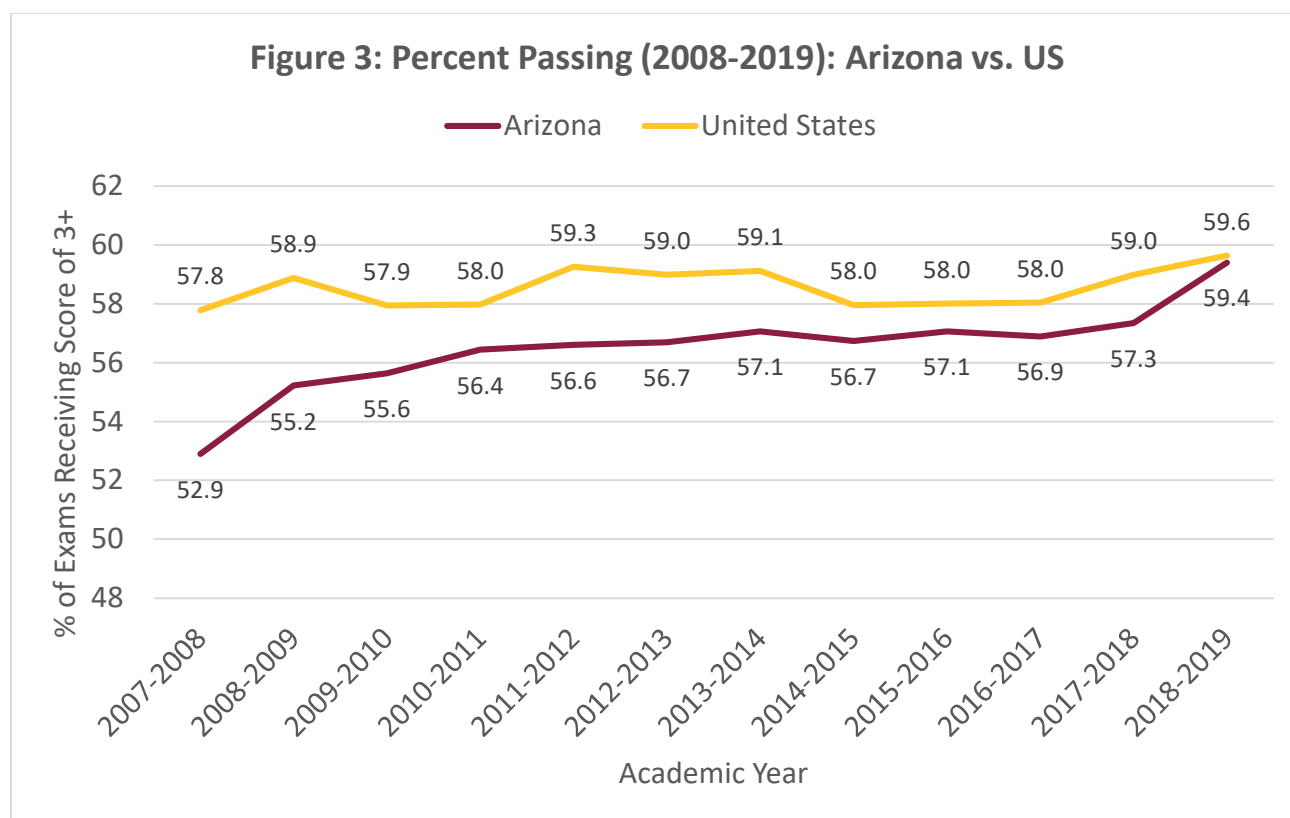
Over the last decade, Arizona students' performance indicators on AP exams have become more competitive with US students.

There are two indicators of AP performance including the average AP exam score and the percentage of students who pass their AP exam. In both of these indicators, Arizona students'

have substantially closed the gap between them and US students over the past decade. While the average AP score for students across the US has increased 2.1% from 2008 to 2019, Arizona students' average score has experienced a 7.8% increase during this same time period (Figure 2).



Moreover, while the percent of all AP exams receiving a passing score (3, 4, or 5) has increased for US students as well as here in Arizona (Figure 3), Arizona students experienced a higher percent growth since 2008. Arizona students experienced a 12.3% increase in their pass percentage from 52.9% of students passing AP exams in 2008 to 59.4% of students passing AP exams in 2019. This percent growth is significantly higher than the 3.2% increase in pass percentage for US students, in general. This growth in both average score and as well as pass percentage indicate Arizona students have substantially closed the gap with their US peers and are performing on par with students across the US as compared to the performance in 2008.



What are the implications and limitations of these indicators?

There are some implications and limitations with regards to these findings and how they can inform state-, district-, or school-level policies with regards to AP courses and exams. Higher year over year gains in Arizona student AP exam participation could potentially indicate more opportunities and fewer barriers for Arizona students to participate in AP courses and exams. The avenues by which these opportunities are available is unclear without looking at student-level data to determine where participation growth is occurring. We do not know where the increased participation is coming from (i.e., is it spread across the state or is there increased participation in select areas/districts/schools). Further analysis including student-level data available through the Arizona Department of Education will be able to provide more insight into where these increases in students participation are, whether opportunities are equitably distributed throughout the state, and where are the exemplar schools of student participation and what are they doing to support student participation.

Increases in both average AP exam scores as well as percentage of exams receiving passing scores are promising indicators of growth, possibly indicating Arizona students are receiving appropriate rigorous instruction and preparation within their courses. Increases in both of these indicators is beneficial to students' opportunities for higher education by increasing their competitiveness with students from across the US as well as their likelihood of persistence in college. Similar to the findings of participation, these indicators shed light on the big picture

across Arizona; however, analyses of student-level data could provide insight into which areas/districts/schools are seeing growth in performance.

Section 2: How has overall AP exam participation and performance changed across gender for Arizona high school students from 2008 to 2019?

Looking at trends of AP exam participation and performance by gender can help us determine whether equal opportunities exist for students regardless of their gender. This section starts to look closer at changes in participation and performance for subgroups of Arizona students. More specifically, this section compares participation and performance across gender, male and female, for Arizona high school students between 2008 and 2019. Exam participation was calculated as the number of College Board reported test takers for each gender divided by public high school enrollment reported by NCES for that same gender. Exam performance, was calculated as the percentage of exams receiving a passing score (i.e., three or higher out of five) as compared to all AP exams being taken.

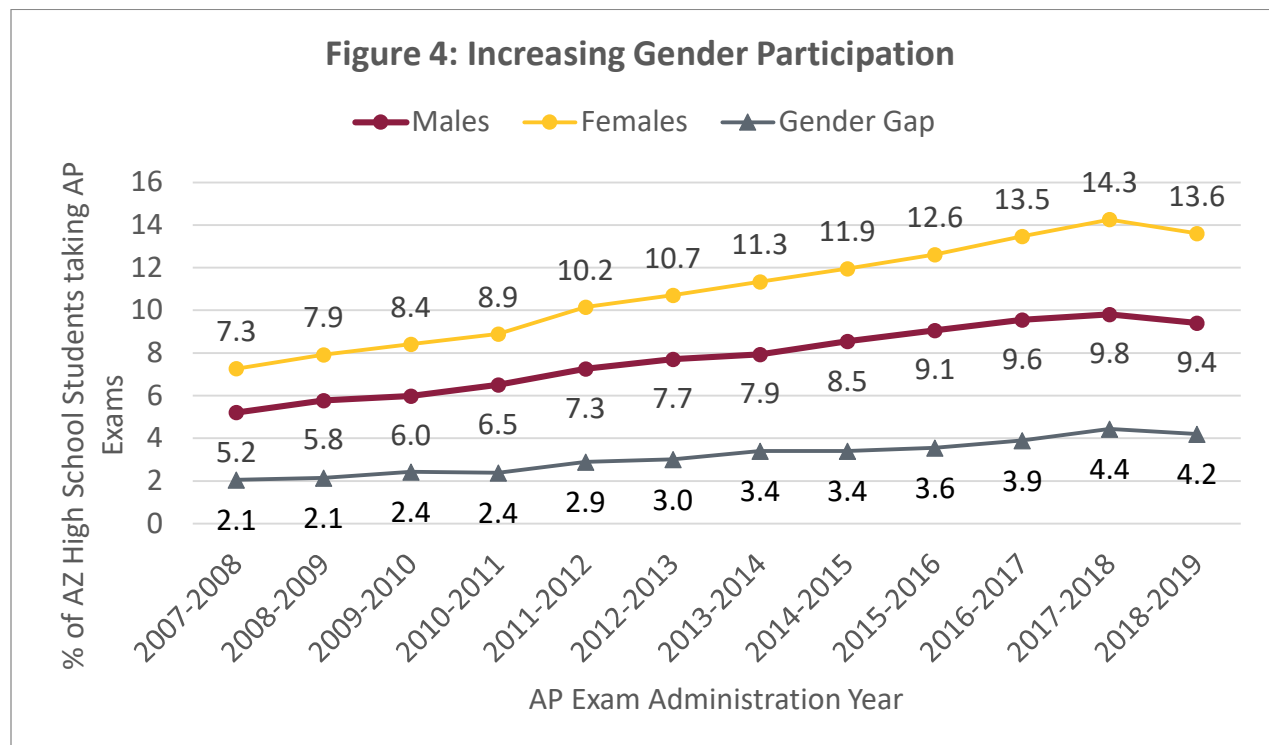
Between 2008 and 2019, the proportion of Arizona high school males and females participating in AP exams has increased; however, females are still overrepresented in the AP test taking population.

In looking to see if Arizona high school male and female students are proportionally represented within the population of AP test takers, males were underrepresented and females were overrepresented (Table 1). From 2008 to 2019, males made up approximately 51% of the high school population but they only accounted for about 42% of the AP test taking population. In contrast, Arizona females made up about 49% of the Arizona high school population but accounted for about 58% of the test taking population.

Table 1: Percentage of high school enrollment and AP test takers, by gender

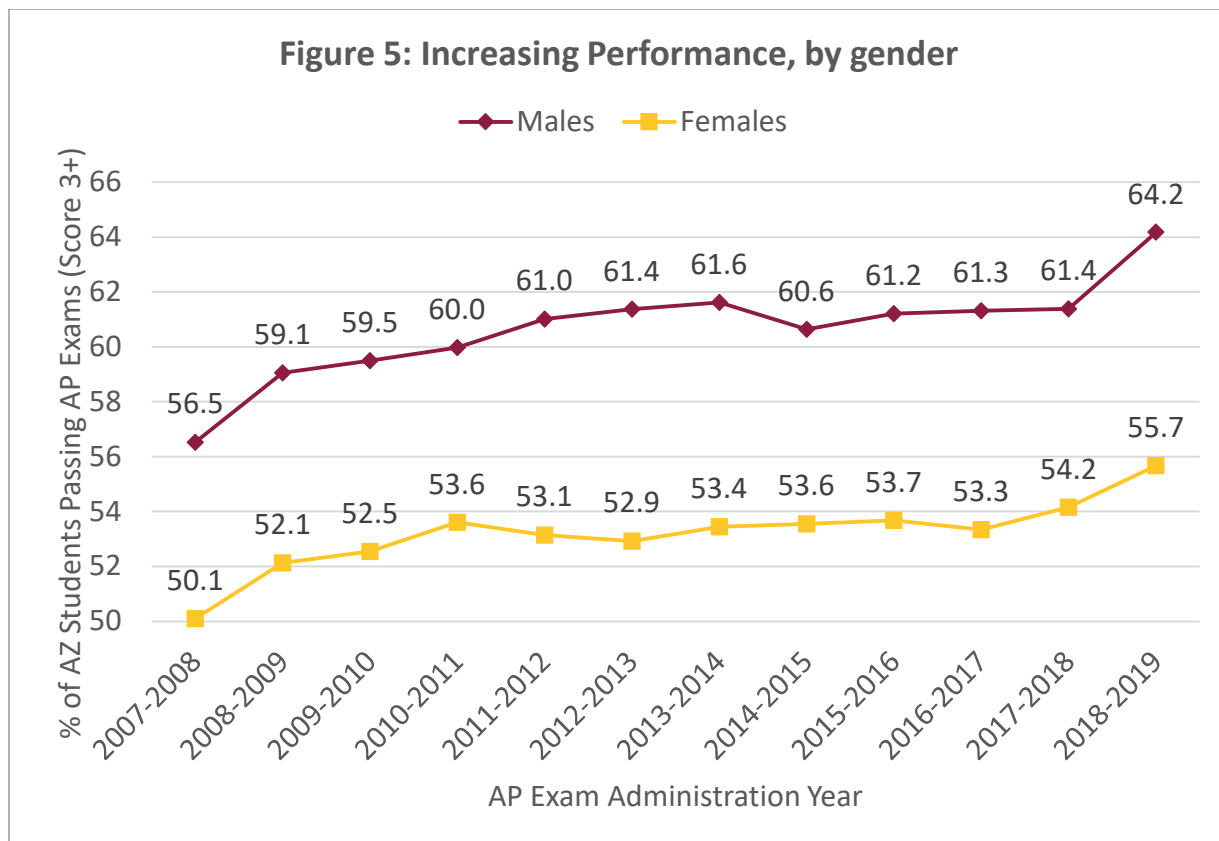
Academic Year	% NCES HS Enrollment		% AP Test Takers	
	Males	Females	Males	Females
2007-2008	50.9	49.1	42.6	57.4
2008-2009	51.1	48.9	43.3	56.7
2009-2010	51.3	48.7	42.8	57.2
2010-2011	51.2	48.8	43.5	56.5
2011-2012	51.1	48.9	42.7	57.3
2012-2013	51.0	49.0	42.8	57.2
2013-2014	51.2	48.8	42.3	57.7
2014-2015	51.1	48.9	42.8	57.2
2015-2016	50.9	49.1	42.7	57.3
2016-2017	50.9	49.1	42.4	57.6
2017-2018	51.0	49.0	41.8	58.2
2018-2019	51.0	49.0	41.8	58.2

With the exception of the 2019 AP administration, both male and female high school students in Arizona have increased their participation in AP exams (Figure 4). However, the difference between student participation across genders increased 104% during this same time. Overall, higher participation is due to females with a 6% increase in the percent of high school females participating from 2008 to 2019. This compares to a 4% increase in the percent of high school males participating in AP exams during the same time period.



While Arizona males are underrepresented within the AP test taking population, they have consistently outperformed Arizona females.

Although Arizona females participate in AP exam taking more than males, their performance, as measured by the number of exams receiving a passing score, three or higher out of five, as compared to the total number of exams, still lags behind their male counterparts (Figure 5). While the passing percentages for both males and females have increased similarly, a 7.7% gain for males and 5.6% gain for females between 2008 and 2019, the gap between the genders has not declined during this same time and has instead increased by 33% or 2 percentage points.



What are the implications and limitations of these indicators?

There are some implications and limitations with regards to these findings and how they can inform state-, district-, or school-level policies with regards to AP courses and exams. The increases in participation and performance across genders is promising for Arizona students and potentially implies increased opportunities as well as fewer barriers for students to prepare for and participate in AP exam taking. While these findings show promise in opportunity, they also indicate females are more likely than males to take AP exams and males are more likely than females to pass the AP exams they take. Unfortunately, the fact that the gap between male and female students remained relatively similar for both participation and performance over the past 10 years indicates a lack of impact of any interventions intended to close this gap. The mechanisms and prevalence of these opportunities for preparation and participation in AP are unclear without looking at student and school level data. Further analysis including student and school level data could provide insights into where growth in participation and performance exists or is constrained, whether opportunities are equitably distributed throughout the state, and where exemplar schools are in regards to AP participation and performance across genders.

Section 3: How has overall AP exam participation and performance changed across ethnic groups for Arizona high school students from 2008 to 2019?¹

Looking at trends of AP exam participation and performance by ethnicity can help us determine whether equal opportunities exist for students no matter their ethnicity. Exam participation was calculated as the number of College Board test takers for each ethnic group, as self-reported by the student, divided by public high school enrollment according to NCES for that same ethnic group. Exam performance was calculated as the percentage of exams receiving a passing score (i.e., three or higher out of five) as compared to all AP exams taken. Students self-report their ethnicity; however, these classifications have changed over time and shifted at different times for each data source. Reporting of enrollment data from NCES added Hawaiian Native/Other Pacific Islander and Two or More Races in the 2010-2011 academic year. Between the 2008 and 2015 AP administrations, College Board ethnic group choices included American Indian, Asian, Black, Mexican American, Puerto Rican, Other Hispanic, White, and Other. Starting with the 2016 AP administration students were given the classification options of American Indian/Alaska Native, Asian/Pacific Islander, Black, Hispanic/Latino, Hawaiian Native/Other Pacific Islander, White, Two or More Races, and Other. For the purposes of this analysis, ethnic classifications were merged as indicated in Table 2 in order to maintain consistency of analysis and representation.

Table 2: College Board ethnic group classifications choices for students taking AP exams

2015 and Prior AP Administrations	2016 and Post AP Administrations
American Indian	American Indian/Alaska Native
Black	Black
White	White
Asian	Asian/Pacific Islander
Mexican American	Hawaiian Native/Other Pacific Islander
Other Hispanic	Hispanic/Latino
Puerto Rican	Two or More Races
Other	Other
Not Stated	No Response

Please note that figures used to represent findings from this analysis utilize simplified names for identifying ethnic groups. This simplification is used in order ensure figures and reading do not get too cluttered and in no way is meant to devalue the ethnic identification students used to

¹ Ethnic group titles are minimized for purposes of formatting and presentation; however, include additional classifications. American Indian includes Alaska Native; Asian includes Pacific Islander, Hawaiian Native and Other Pacific Islander; Hispanic includes Latino, Mexican American, Puerto Rican, and Other Hispanic; Other includes Two or More Races.

represent their identity. In alignment with the U.S. Census ethnic classifications, the College Board, and NCES, the ethnic group of American Indian includes Alaska Native. The ethnic group Asian includes Pacific Islander, Hawaiian Native, and Other Pacific Islander. The Hispanic ethnic group includes Latino, Mexican American, Puerto Rican, and Other Hispanic. The Other ethnic group includes Two or More Races.

Almost all individual ethnic groups experienced growth in the proportion of Arizona high school students participating in AP exams between 2008 and 2019; however, the AP test taker population remains disproportionately representative of the ethnic diversity present within Arizona's high school population during this same time.

Between the 2008 and 2019 administrations of the AP exam, almost all ethnic groups experienced an increase in the proportion of enrolled high school students, self-reported in their ethnic group, participating in AP exams (Table 3). Hispanic students experienced the most growth (+162%) from 3.7% to 9.6% of their high school population participating in AP exams. In terms of students, the Hispanic/Latino ethnic group experienced an increase from 4,300 test takers in 2008 to almost 15,000 in 2019. Additionally, the American Indian and Black ethnic groups experienced high levels of growth within their enrolled student populations (+91% and +85%, respectively) while the Asian and White ethnic groups experienced lower levels of increased participation within their student populations (+67% and +62%, respectively). The ethnic classification of Other, including "Two or More Races", has fluctuated between 11.6% and 25.1% of their high school student population involved in AP test taking on any given year. During this same time period ethnic group classifications changed across data sources at different times. Overall, this ethnic group experienced a slight decrease in participation (-20%) for enrolled high school students from 2011 to 2019; however, the number of test takers increased from 700 to 1,807 during this same time period. Further analysis of the trend of the Other ethnic group indicates 10% increase in participation from 2011 to 2019. In general, while there were increases in the number of students taking AP tests within each ethnic group, not all ethnic groups experienced growth in the percentage of student taking AP exams because of the simultaneous growth in population.

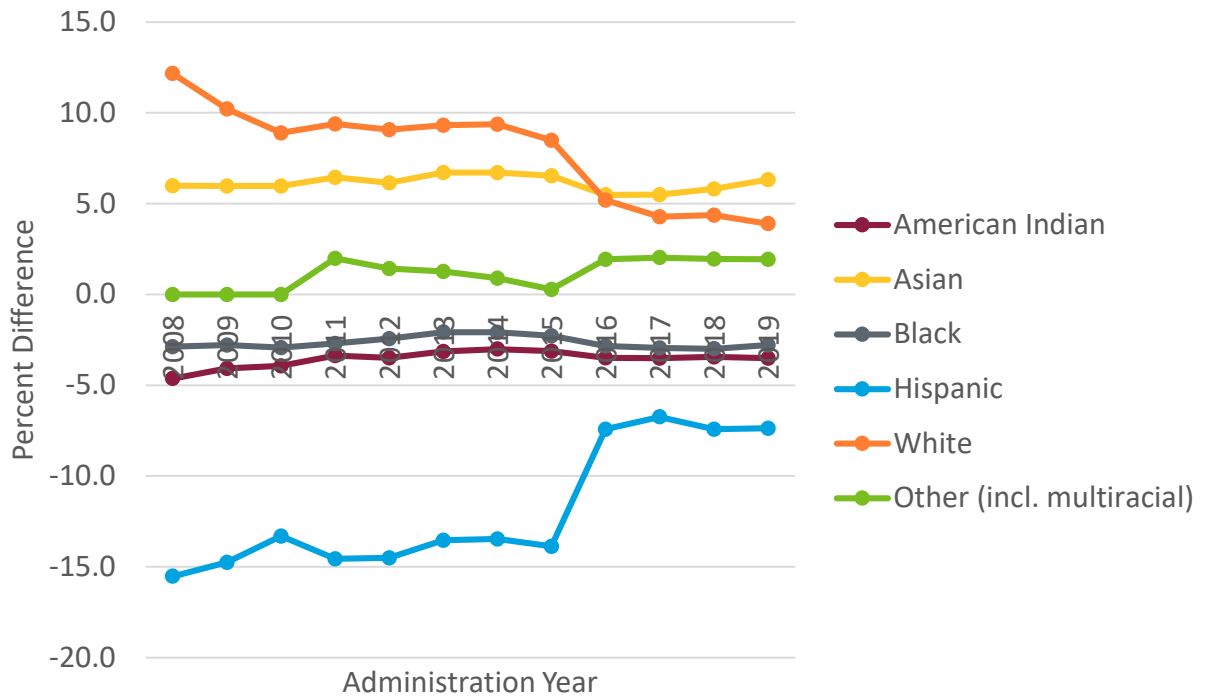
Table 3: Percent of enrolled high school students within ethnic group taking AP exams

Academic Year	American Indian	Asian	Black	Hispanic	White	Other*
2007-2008	1.5	20.0	3.1	3.7	7.8	NR
2008-2009	2.2	20.7	3.6	4.2	8.3	NR
2009-2010	2.4	21.2	3.7	4.7	8.6	NR
2010-2011	2.8	23.7	4.1	4.9	9.3	25.1
2011-2012	2.9	25.8	4.9	5.6	10.5	18.3
2012-2013	3.4	28.8	5.8	6.2	11.2	16.5
2013-2014	3.8	30.4	6.0	6.6	11.7	14.3
2014-2015	3.6	32.0	6.0	6.9	12.3	11.6
2015-2016	2.6	29.8	5.2	9.0	12.2	20.5
2016-2017	2.8	31.5	5.3	9.7	12.7	21.7
2017-2018	3.0	33.6	5.6	10.0	13.3	21.7
2018-2019	2.9	33.3	5.7	9.6	12.6	20.0

*Note: NR = not reported; * = includes multiracial.*

In looking to see if ethnic groups were proportionally represented within the population of AP test takers, the diversity among Arizona's high school students was not found to be represented within the AP test taker population. Figure 6 indicates the percent difference between Arizona high school enrollment and AP participation within ethnic groups with a positive percent difference indicating overrepresentation in the AP test taking population and a negative percent difference indicating underrepresentation. Between 2008 and 2019, students who self-reported as American Indian, Black, and Hispanic were underrepresented in the AP test taker population while students who self-reported as Asian, White, and Other (including multiracial) were overrepresented in the AP test taker population. In this time period, AP participation of American Indian, Hispanic, and White students came closer to that present within the student population. Between 2008 and 2019, the AP test taker population gained representation of students who identify as American Indian and Hispanic and reduced overrepresentation of White students. During this time, the underrepresentation of Hispanic students taking AP tests decreased substantially from 14% to 7% and the overrepresentation of White students decreased from 9% to 5%. The Asian and Black ethnic groups have remained relatively consistent during this same time with Asian students being overrepresented and Black students being underrepresented.

Figure 6: Representation Gap Between Enrollment and AP Participation, by AP Administration Year



While representation of the student enrollment population was not achieved between 2009 and 2019, there were changes to the representativeness of some ethnic groups between the 2015 and 2016 AP administrations (Table 4). Representation of Hispanic students within the AP test taker population increased dramatically from 22% in 2008 to 38% in 2019; however, the 38% is still 7% points shy of their representation in Arizona's high school enrollment (45%). During this same time, overrepresentation of Asian and White students decreased by 1% and 3.3%, respectively. Additionally, other underrepresented groups including American Indian and Black became more underrepresented (0.4% and 0.5%, respectively). While there was a drastic increase in the representation of Hispanic students participating in AP exams, the declines in other ethnic groups present some concern and the need for more research to ensure that this decline is not due to a limitation in AP course and test availability.

Table 4: Percent of NCES enrollment and AP test taker population, by ethnicity

Academic Year	American Indian		Asian		Black		Hispanic		White		Other*	
	% HS	% AP	% HS	% AP	% HS	% AP	% HS	% AP	% HS	% AP	% HS	% AP
2007-2008	6.1	1.5	2.7	8.7	5.7	2.8	37.7	22.2	47.7	59.9	NR	3.0
2008-2009	6.0	1.9	2.9	8.9	6.0	3.2	38.4	23.7	46.7	56.9	NR	3.3
2009-2010	5.9	1.9	3.1	9.0	6.1	3.2	39.1	25.8	45.9	54.8	NR	3.0
2010-2011	5.3	2.0	3.1	9.5	5.8	3.1	40.3	25.7	44.6	54.0	0.9	2.9
2011-2012	5.2	1.7	3.1	9.3	5.6	3.2	41.1	26.5	43.7	52.8	1.3	2.7
2012-2013	5.0	1.8	3.1	9.8	5.6	3.5	41.8	28.3	42.9	52.2	1.6	2.9
2013-2014	5.0	1.9	3.1	9.8	5.5	3.4	42.6	29.2	42.0	51.3	1.8	2.7
2014-2015	4.8	1.7	3.1	9.6	5.5	3.2	43.3	29.4	41.3	49.8	2.0	2.3
2015-2016	4.6	1.1	3.1	8.6	5.5	2.7	43.9	36.5	40.7	45.9	2.2	4.1
2016-2017	4.6	1.1	3.1	8.6	5.5	2.6	44.6	37.9	39.8	44.1	2.3	4.3
2017-2018	4.6	1.2	3.2	9.0	5.6	2.6	45.2	37.8	39.0	43.3	2.4	4.4
2018-2019	4.7	1.2	3.3	9.7	5.6	2.8	45.0	37.6	38.8	42.7	2.6	4.5

*Note: % HS = percent of high school population; % AP = percent of AP test takers; * = includes students who self-reported as multiracial.*

Even though there were some shifts in representation within the AP test taking population, overrepresented groups have consistently outperformed underrepresented groups.

Although AP exam participation increased within almost all ethnic groups between 2008 and 2019, performance, as measured by the number of exams receiving a passing score, three or higher, as compared to the total number of exams, did not improve across all ethnic groups (Table 5). On the whole, the percentage of Arizona students passing AP exams increased six percentage points from 2008 to 2019 with 53% passing in 2008 and 59% passing in 2019. Most ethnic groups have experienced an increase in the percent of students passing the AP exams. The Other and Asian ethnic groups experienced the largest increase in pass percentages. Pass percentages for students self-reporting as Other increased 49% in 2008 to 65% in 2019. Similarly, Asian students' pass percentage increased from 62% to 77%. Students within the ethnic groups of White, Black, and Hispanic experienced smaller gains in the percentage of students passing their AP exams (58% to 67%; 35% to 42%; and 38% to 44%, respectively). While most ethnic groups reported gains in their percent of passing students, students within the American Indian population decreased in their percent passing from 27% in 2008 to 22% in 2019.

Table 5: Percent of passing scores (3+) for all AP exams, by ethnicity

Academic Year	American Indian	Asian	Black	Hispanic	White	Other*
2007-2008	27.0	61.7	34.6	37.5	58.2	49.4
2008-2009	27.5	65.1	35.6	39.1	61.3	51.4
2009-2010	27.2	66.7	38.9	39.8	62.5	53.6
2010-2011	23.1	67.9	39.5	40.0	63.7	54.5
2011-2012	28.5	68.4	39.5	41.7	63.0	54.5
2012-2013	31.4	67.1	38.6	41.4	63.4	63.1
2013-2014	27.3	70.5	39.3	41.2	64.0	60.3
2014-2015	30.7	71.5	41.2	40.4	63.7	61.9
2015-2016	22.4	74.3	40.0	41.4	64.9	61.2
2016-2017	23.2	74.1	41.7	41.5	64.8	60.7
2017-2018	17.3	74.6	41.2	42.2	65.0	64.0
2018-2019	21.9	76.7	41.6	44.3	66.9	65.4

Note: * = includes multiracial.

What are the implications and limitations of these indicators?

While participation increased within all ethnic groups during the 2008 to 2019 time period, the gap in participation rates within ethnic groups did not close, and in some cases got worse. Although there was growth in the participation of Hispanic students, almost all of the improvement occurred between the 2015 and 2016 AP administrations. A lack of further progress on the gap between AP participation and high school enrollment for all groups presents some concern. Additionally, decreases in representation of other ethnic groups during this same time period indicate some concern suggesting potential limitations in access to or involvement in the AP test taking program. While there are other rigorous course taking options available for students, this report only reports on AP participation and performance. Analysis of participation and performance in other assessments and courses (e.g., International Baccalaureate, Dual Enrollment) would provide a clearer picture of the trends and whether there are limitations in access or involvement in these courses or assessments on the whole.

Further research is needed to determine the impact programs or policies may have had on representative participation during this time period. For example, the increase in representation of Hispanics between the 2015 and 2016 AP administrations aligns with Mesa Public Schools' initiative of Equal Opportunity Schools (EOS) supporting higher enrollment of Hispanic students in AP courses. Further promotion of representation for Arizona's students could be benefitted by further analysis of what happened during this time period.

In addition to representative participation across ethnic groups, gaps in performance across ethnic groups still remain. Underrepresented ethnic groups have not experienced the same gains as overrepresented ethnic groups. This difference could suggest implications for access to

and caliber of AP courses in preparation for exams. It could also suggest implications for barriers to financial access to AP test taking and preparation. Further analysis of the distribution of these students across the state and what school and district resources they have access to would be necessary to determine how to provide structural supports to students in order to reduce the gaps of AP performance across ethnic groups.