

Behind the Advanced Placement (AP) Curtain: Disproportionality in Hispanic AP Exam Completion

Virginia Palencia

Correspondence: Virginia Palencia, Christopher Newport University, United States.

Received: September 2, 2024

Accepted: November 25, 2024

Online Published: December 17, 2024

doi:10.11114/ijce.v8i1.7163

URL: <https://doi.org/10.11114/ijce.v8i1.7163>

Abstract

While many researchers are well-versed in AP gaps and equity, one area in particular impacts Hispanic students and remains underexplored: the AP completion gap. In this study, AP completion is analyzed by two factors: taking the AP exam and passing the AP with a score of 3 or higher. Through a secondary data analysis of the Civil Rights Data Collection [CRDC] (2017) and College Board (2017) data, this study demonstrated disproportionality in taking the exam between Hispanic students and Asian students in suburban schools. Additionally, there was also a statistically significant difference in Hispanic pass and fail scores by type of exam compared to Asian and White students. These findings reveal the need to evaluate AP exam policy, especially in regard to success completion of AP coursework.

Keywords: advanced placement, ap completion, ap scores, hispanic, disproportionality

1. Introduction

Despite the promise of *Brown v. Board* (1954) and desegregation efforts, segregation persists and even flourishes between districts and within school walls (Ladson-Billings 2013; Orfield, Kucsera, and Siegel-Hawley 2012). Under-resourced schools and segregation negatively impact systemically excluded students, especially in regard to access to opportunity and college preparation. Hispanic students are more likely than White and Asian students to attend segregated, underfunded schools and comprise over 75% of the student body in high-poverty schools (National Center for Education Statistics [NCES], 2019; Pew Research Center 2014).

Even within the same school, Hispanic students often have disparate experiences from their peers: Hispanic students disproportionately enroll in general education classes, while White and Asian children disproportionately enroll in Advanced Placement classes (Crabtree, Richardson, & Lewis, 2019; Gándara & Contreras, 2009). Barriers to advanced work creates opportunity gaps that are systematically difficult to dismantle; this is potentially detrimental for Hispanic students as they comprise 25.4% of the national school population (Pew Research Center, 2014).

The benefits of participating in and completing AP coursework are numerous: postsecondary achievement, college persistence, college completion, as well as the potential to save students money (Cisneros et al., 2014). Despite the College Board's recent push to serve more students from marginalized backgrounds, AP enrollment disproportionality still remains (Crabtree, Richardson, & Lewis, 2019; Gándara & Contreras, 2009). Further, Hispanic students are also underrepresented in STEM in comparison to Asian and White students (College Board, 2014; Riegle-Crumb & Grodsky, 2010). While many are well-versed in enrollment and STEM gaps, one gap in particular, impacts Hispanic students and remains underexplored: the AP completion gap. For those Hispanic students who take AP courses, the elusive score of 3 or higher remains out of reach for many, denying them college credit (Cannon, 2011; Judson & Hobson, 2015).

In the end, the ability to complete AP coursework has educational and economic consequences that impact all students, which in turn, impacts our greater society. For systemically excluded students, these opportunities are even more important. Examining differences in AP completion contributes to our collective work in creating greater educational equity.

Beyond a societal imperative, there are several reasons to undertake this study. The brunt of research on Hispanic students centers in several states: California, Texas and New York. There is less research in other geographic regions of the U.S. Further, research centering on AP completion and test-taking remains underexplored. In response to the national problem of disproportionality in AP completion, this research examines Hispanic completion patterns in Virginia using data from the Civil Rights Data Collection (CRDC) and the College Board (2017).

2. Literature Review

The benefits of AP completion cannot be understated. Engaging in a rigorous curriculum is tied to better overall academic outcomes (Crabtree et al., 2019; Long et al., 2012; Oakes, 2005; Scafidi et al., 2015) and greater economic opportunities (Moller & Stearns, 2012; Tyson, 2013). Completion of AP courses is also tied to stronger educational outcomes in college regarding persistence and performance (Naff et al., 2021).

A confounding and complicating factor in any discussion of AP completion centers on terminology. Some regard completion as the passage of an AP course (Booth et al., 2017). Most

regard AP completion as the passing of the AP exam with a 3 or higher (a score widely accepted by many universities); however, some refer to this as an AP passage rate (Bittman et al., 2017). Another under-researched dimension of AP completion is whether or not students take an exam. In other words, a student may take a course (and pass), but then opt to not take the exam, thus shorting them of the ability to use the coursework towards college credit. This points to a critical gap in information regarding AP success and completion. For this study, AP completion refers to two outcomes: whether a student takes the AP exam and whether a student passes the exam with a score of 3 or above.

Numerous studies demonstrate that there is a marked gap for passing exam scores for Hispanic students (Cannon, 2011; Judson & Hobson, 2015). Despite higher overall enrollment and participation in AP, many Hispanic students do not receive a score of 3 or higher (Cannon, 2011; Judson & Hobson, 2015). This score matters because it is the generalized score that many colleges accept for credit as a cut score; thus, passing with a 3 or higher could potentially spare students having to pay for the college course or take it again. In regard to completion, Judson & Hobson (2015) analyzed College Board data and found that overall pass rates have fallen over the last fifteen years for Black, Hispanic, and Native American students despite massive growth in AP enrollment. Hispanic students' pass scores declined at an especially striking rate: Hispanic students passed at 61.1% in 1997, compared to 42.8% in 2012. Booth et al., 2017 sought to analyze AP course completion by race/ethnicity, as well as school characteristics, however they defined completion as "a course that a student passed with a grade of D or higher," rather than the passage of the exam. Gaps between White and Hispanic students for AP completion was 14 percentage points in this study (Booth et al., 2017).

School characteristics seem to play a role in AP completion. High poverty schools have students that are less likely to pass the exam than those in higher economic communities (Bittman et al., 2017, Booth et al., 2017, Burney, 2010, Cannon, 2011). Bittman et al. (2017) found a negative correlation between low socioeconomic status (SES)/high poverty schools and passing the exam, potentially as a result of lower AP enrollment for such schools. Cannon's (2011) analysis of students in two Texas high schools (n=4,648) also found that exam-qualifying scores were related to SES, as well as reporting disproportionality in Hispanic AP enrollment.

The amount of course offerings is positively correlated with AP exam completion (Burney, 2010, Handwerk, 2008). This suggests that a rigorous environment creates many opportunities to take AP which ultimately benefit students (Burney, 2010). In a similar vein, Bittman et al. 2017 found a positive correlation with Hispanic students passing their exams (3 or higher) with their White counterparts passing the exam. Potential reasons may be support, rigor, meaningful instruction or the presence of a positive AP culture in the school. However, segregation plays a role in the amount of rigor available for Hispanic students. Schools that are considered high-minority have fewer AP course offerings compared to predominantly White schools (Cisneros et al., 2014). In a study of Arizona schools, Cisneros et al. (2014) found that while Hispanic students took the exam at a higher rate than their peers, only 26% of Hispanic students passed the exam, a rate below Asian and White students.

While school characteristics and the number of AP course offerings impact a student's access to and enrollment in AP coursework, gaps still persist even in schools that offer AP that cannot be explained by school-level characteristics. On a national level, Black and Hispanic students are less likely to receive AP credit; the predominant factor is lack of access (Naff et al., 2021). Nationally, AP participation for Hispanic students has increased over the last ten years; however, in the state of Virginia, Hispanic students are still underrepresented in coursework compared to their Asian and White peers even when considering school enrollment (Palencia & Shakeshaft, 2022; Naff et al., 2021). In regard to completion, Hispanic students had a little more than half of their expected representation when taking the test or passing it with a score of three or higher in Virginia (Naff et al., 2021). Urbanicity is also a factor to consider with access, as suburban and urban students are more likely to have higher course offerings compared to rural students (Palencia & Shakeshaft, 2022; Gagnon & Mattingly, 2018; Kettler & Hurst, 2017; Naff et al., 2021). In the state of Virginia, gaps still persist in suburban and urban schools between Black and Hispanic students and White and Asian students (Palencia & Shakeshaft, 2022; Naff et al., 2021). Thus, despite attending schools that have access to the AP coursework, disparities remain between groups of students (Kettler & Hurst, 2017; Naff et al., 2021).

Additional factors that are often cited for differences in AP enrollment include parental advocacy, student motivation, teacher quality, and academic tracking (Naff et al., 2021). With the exception of teacher quality, these factors address AP

enrollment and not persistence or completion of the coursework. Most recently, Graefe & Ritchotte (2019) explored factors that contributed to exam success for Hispanic students and found that out of the following factors: gifted identification, GPA, ESL status, SES, and gender, only gifted identification positively correlated with passing the exam. The lack of specific investigation into factors that contribute to test-taking, exam completion and persistence support the need to explore this issue further. Completing the AP exam matters for all students: financially, academically, and in terms of opportunity (Moller & Stearns, 2012). Education and more to the point, participating in AP, is tied to economic opportunity and ultimately, income equality; thus, AP completion can leverage future opportunities for Hispanic students (Moller & Stearns, 2012; Tyson 2013).

3. Research Design

This study was a secondary analysis of data from the Office of Civil Rights and the College Board to examine patterns in AP completion for Hispanic students in Virginia. Collected by the United States Office for Civil Rights and part of the Civil Rights Data Collection (CRDC), the data used in this sample were collected for the 2017¹ school year from nearly every local educational agency (LEA) and public school (CRDC, 2021).

The CRDC lists 445 public high schools for the state of Virginia, including traditional, alternative, Department of Justice (DOE/DOJ), regional, special education, and charter schools. Of these public high schools, 289 traditional² schools offered Advanced Placement courses in the 2016-2017 school year (CRDC, 2021).

4. Research Questions

1. To what extent does racial disproportionality exist for taking the AP exam in Virginia for Hispanic students?
2. Are there differences by type of exam in regard to passing for Hispanic students in Virginia?

5. Methods

To answer the research questions, data provided by Virginia LEA's to the Civil Rights Data Collection (CRDC) and the College Board was used to analyze completion patterns for Hispanic students in Virginia. At the time of the study, the most recent CRDC data available was from 2016-2017. In addition to the CRDC data, test scores provided by the College Board (2017) supplemented and expanded the data set, which were analyzed for completion patterns by course type and score in Virginia.

Measuring Completion with CRDC data

AP completion refers to the outcomes of an AP course: (1) whether students take the AP exam and (2) whether students pass the exam with a score of three or above. In order to measure test-taking completion the following parameters were used: the school had to offer AP coursework, the school had to be classified as a traditional school,³ and members of the respective racial/ethnic group had to be enrolled in at least one AP course. Test-taking completion was calculated by dividing those who did not test by AP enrollment for each specific racial/ethnic group. As a result, the analysis for overall test-taking completion is for traditional schools that have AP available (n=289), but calculations depend upon respective race/ethnicity enrolled in AP.

In order to examine test-taking patterns, a categorical variable was created to indicate urbanicity, using both the Census Bureau's designation of MSAs and classification of city or county. In the state of Virginia, there are 139 rural, 156 suburban and 51 urban school districts.

College Board Data

The College Board data provided means and scores for all tests taken in Virginia in the year 2017 by race/ethnicity and type of test (n=38). Because the data included scores (1-5) for all race/ethnicities and all exams, this provided a more robust picture of completion rates for students than relying on CRDC data alone. The College Board completion data was not connected to any specific school district or school; rather it was statewide data that allowed for distinctions between different categories of schools. Only public schools were selected to better align with the CRDC data set. Then, the data were used to calculate completion rates for different passing rates and disproportionality.

There were 38 total AP courses and exams available in Virginia in 2016-7 (College Board, 2020). Of those, 26 were nonSTEM AP courses; the 13 STEM AP courses and exams included Biology, Calculus AB, Calculus BC, Chemistry,

¹ This is the most recent data available through the Civil Rights Data Collection.

² Traditional schools (n=289) refer to schools that are not identified as alternative, DOJ, magnet, regional, charter, or special education.

³ Certain magnet, alternative, and charter schools (n=13) do offer AP courses in Virginia, but the numbers are small enough to potentially skew data.

Computer Science A, Computer Science Principles, Environmental Science, Physics A, Physics B, Physics C: Electric, Physics C Mechanical, Psychology and Statistics (College Board, 2020)

Finally, racial/ethnic categories such as Native American, Pacific Islander, Other, or Two or more races were omitted either because the numbers in the state of Virginia were too small for meaningful categorical comparison or because the categories did not align between the CRDC and College Board data. As a result, data were analyzed for the following racial/ethnic categories: Asian, Black, Hispanic, and White students.

Measures

Using the College Board (2017) data, a categorical variable was created indicating whether an exam was STEM or nonSTEM. From there, variables were calculated for pass rates (exams with a 3 or higher/total exams) for each racial/ethnic category. Variables for failure rates (exams with a score of 1 or 2/total exams) were created in the same fashion.

The data from the CRDC and College Board were based on actual student counts; however, two independent samples *t* tests were conducted with the intention of making this research useful to a broader population of scholars in the hopes that they can reach meaningful and inferential conclusions.

6. Findings

The first question addressed the extent of racial disproportionality in taking the AP exam. Analysis of the data documents a disproportionality for taking the AP exam in Virginia public schools in regard to race/ethnicity.

Completion: Taking the Exam

Out of traditional schools with at least one AP course available ($n=289$), the highest proportion of students not taking the exam out of possible courses enrolled were Black students (34.8%), followed by Hispanic (23.3%), White (22.3%) and Asian students (11.19%) (Table 1).

Table 1. Test-taking Completion

Race/Ethnicity ⁴	<i>Did not Take the Exam</i>	<i>AP Enrollment</i>	<i>Percent Not Taking the Exam</i>
	<i>n</i>	<i>n</i>	<i>%</i>
Asian	1,262	11,277	11.2
Black	3,861	11,079	34.8
Hispanic	2,088	9,031	23.1
White	11,591	51,913	22.3

In order to statistically compare test-taking patterns of students, an independent sample *t*-test was run to determine whether there were differences by race/ethnicity in different school settings. On average, Hispanic students ($M=.28$, $SD=.027$) were significantly less likely to take the exam compared to Asian students ($M=.22$, $SD=.28$), $t(196) = -2.12$, $p = .005$, $d = .31$ in suburban and rural schools. There was no significance between urban and suburban schools in test-taking.

Completion: AP Scores

The second question addressed differences by type of exam in passing the course for Hispanic students. There were differences in passing the exam in regard to STEM and nonSTEM courses, as well as disproportionality in passing the exam and scores between Hispanic students and Asian/White students. Across all AP exams in Virginia ($n=38$), Asian ($M = 3.32$) and White students ($M = 3.19$) had higher mean AP exam scores than Black ($M = 2.31$) and Hispanic students ($M = 2.73$) (Figure 1).

⁴ Sample size for schools with Asian students enrolled in AP ($n=227$), Black ($n=249$), Hispanic ($n=247$) and White ($n=286$).

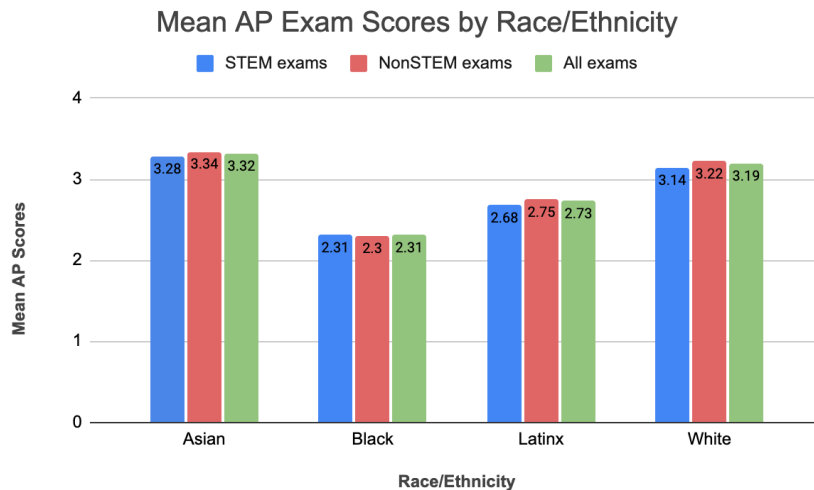


Figure 1. Mean AP Exam Scores by Race/Ethnicity

Asian and White students completed the course at higher rates and passed the exam, in comparison to Black and Hispanic students, regardless of category. All students, regardless of race or ethnicity, completed the course and passed at higher rates for nonSTEM exams in comparison to STEM exams, however there were differences for Hispanic students in comparison to their Asian and White counterparts for either type of exam (STEM or nonSTEM). The gap (-15.3%) between Hispanic and White students was larger for STEM exams; however the gap (-18.9%) between Hispanic and Asian students was larger for nonSTEM exams (Table 2).

Table 2. AP Scores by Race/Ethnicity and Type of Exam

Race/Ethnicity	Total Exams <i>n</i> =38		STEM Exams <i>n</i> =13		NonSTEM Exams <i>n</i> =25	
	<i>M</i>	% Passed ⁵	<i>M</i>	% Passed	<i>M</i>	% Passed
Asian	3.32	75.5	3.28	69.4	3.34	78.7
Black	2.31	44.3	2.31	40.1	2.30	46.4
Hispanic	2.73	57.2	2.68	52.2	2.75	59.8
White	3.19	70.9	3.14	67.3	3.22	72.7

STEM Scores

The average of all Hispanic students taking AP STEM exams did not exceed a score of three or above, with the exception of Chemistry (*M* = 3.48), Physics: Electrical (*M* = 3.25), and Physics: Mechanical (*M* = 3.24). Mean scores ranged from 2.05 (Physics A) to 3.48 (Chemistry). The highest percentage pass rate for Hispanic students was for Chemistry (74%), followed by Computer Science Principles (73%), Physics-Electrical (67%), and Physics-Mechanical (66%).

There was a marked gap for Hispanic students and STEM passing rates when compared to Asian and White students. Overall, there was a gap (-15%) between Hispanic and White students; the discrepancy between Asian and Hispanic students was slightly larger (-17%). The largest difference was with the Biology exam, a difference of 23 percentage points. (Table 3).

⁵ Percentage is a calculation of total pass scores/total group of students

Table 3. STEM AP scores by Race/Ethnicity

AP Exam	STEM Pass Rate				
	Total	Asian	Black	Hispanic	White
	%	%	%	%	%
Biology	64	70	29	47	70
Calculus AB	68	73	34	56	74
Calculus BC	62	70	33	50	64
Chemistry	82	85	68	74	83
Computer Science A	68	75	48	60	67
Computer Science Princ.	79	86	63	73	81
Env. Science	52	57	23	36	57
Physics A	39	41	13	29	43
Physics B	47	51	21	32	50
Physics, Elec.	76	78	59	67	78
Physics, Mech.	75	76	56	66	77
Psychology	70	77	50	55	75
Statistics	51	64	22	35	55
Total	64	69	40	52	67

NonSTEM scores

On the whole, the highest Hispanic nonSTEM passing scores could be grouped into two categories: languages and art. With the exception of Art History, Chinese, French, Seminar, Spanish Language, and Spanish Literature (Table 4), the average of all Hispanic students taking AP nonSTEM exams did not exceed a score of three or above. The highest pass rate for Hispanic students was the Spanish Language exam (94%), which comprised about 7% of exams taken by Hispanic students.

Table 4. Hispanic Students and AP NonSTEM Scores

AP NonSTEM Exam	AP Score	Pass Rate
	M	%
Art History	3.16	65
Chinese Language*	3.13	67
Economics, Macro	2.80	54
Economics, Micro	2.90	60
English Composition	2.69	53
English Literature	2.62	51
European History	2.35	41
French Language	3.13	70
German Language*	2.44	67
Government, Comp.	2.60	47
Government, U.S.	2.63	51
Human Geography	2.34	43
Italian*	2.67	78
Japanese*	0*	0*
Latin	2.82	45
Music Theory	2.51	45
Research*	2.78	56
Seminar	3.03	87
Spanish Language	3.89	94
Spanish Literature	3.06	76
Studio 2D	3.50	85
Studio 3D	3.08	75
Studio Draw	3.29	83
U.S. History	2.53	45
World History	2.86	59
Total	2.72	54

*note - Fewer than ten students took the exam

Comparing mean AP scores for both STEM and nonSTEM exams, an independent sample *t*-test was run to determine whether there were differences in passing scores by race/ethnicity and type of exam. On average, Hispanic students taking STEM exams and nonSTEM exams ($M=.39$, $SD=0.12$; $M=.55$, $SD=0.24$) had significant lower pass rates than Asian

students ($M=.60, SD=.15; M=.61, SD=.26$) and White students ($M=.60, SD=.15; M=.65, SD=.16$), $t(34) = -2.70, p = .005, d = .21$.

7. Discussion

Hispanic student AP exam completion is a critical issue regarding AP equity that remains underexplored. While there has been a push towards greater equity in AP access and enrollment, there is less discussion on how likely students are to take the exam and how well students are able to pass the exam with a three or higher, and consequently, receive the full benefits of the AP program. In this study, there was evidence of racial disproportionality in passing the exam for Hispanic students, as well as differences in passage rates for STEM and nonSTEM exams when compared to their Asian and White counterparts. Further, there were differences in taking the exam for Hispanic students when compared to Asian students.

AP Completion: Taking the Exam

In regard to taking the exam, fewer Hispanic (76.9%) AP students took the exam, compared to Asian (88.8%) and White (77.7%) students, which points to gaps between students who historically perform well on the AP and systemically excluded students. This contrasts the work of Cisneros, et al., 2014, who found higher rates of test-taking for Hispanic students compared to all groups. In this study, Hispanic students were twice as likely to not take the exam compared to Asian students (Asian 11.2% v. Hispanic 23.1%), and Hispanic students were slightly less likely to take the exam compared to White students (White 22.3% v. Hispanic 23.1%). Most importantly, these gaps were present in suburban schools; in the state of Virginia, suburban schools have the greatest access to AP coursework, followed closely by urban schools (Palencia & Shakeshaft, 2022). This means that despite having access, a significant amount of Hispanic students enrolled in AP classes are not taking the exam and receiving credit.

College Board Analysis

These findings affirm the prior research finding AP completion gaps for Hispanic and Black students (Cannon, 2011; Judson & Hobson, 2015). Hispanic students were less likely to pass their exam compared to Asian and White students, regardless of the type of exam, with the exception of Spanish Language. Hispanic students outperformed their peers in Spanish Language, with both a higher average mean ($M = 3.89$) and a higher pass rate (94%).

Across all groups, students completed the course and passed at higher rates for nonSTEM exams in comparison to STEM exams. When analyzing the College Board data, Hispanic AP students had a 57.2% overall exam pass rate; for STEM exams, the pass rate was 52.2% and for nonSTEM, 59.8%. The overall pass rate was lower than Asian students (75.5%) and White students (70.9%).

Although all students passed nonSTEM exams at a higher rate, Asian and White students completed both nonSTEM and STEM courses at higher rates and passed, in comparison to Black and Hispanic students, regardless of category. This finding supports prior findings that STEM gaps persist despite gains in enrollment (Riegel-Crumb & Grodsky, 2010). Additionally, the score gap was larger for STEM exams between Hispanic students and White students. The implications indicate that all students perform better on nonSTEM exams; however, significant differences persist between the STEM scores of Hispanic students in comparison to Asian and White students. Such differences may translate into missed opportunities or barriers to future STEM pathways and careers.

8. Limitations

This study has several limitations. For CRDC data, one limitation is that data collected by local LEAs only reflect one year of data (2016-7) and the data collected by the College Board (2017) do not cleanly align. In regard to measurement, because the CRDC only accounts for enrollment in *at least one AP course*, this makes it difficult to gauge for students who are enrolled in multiple AP courses. The unit of analysis was the AP course, not necessarily the student, since students might be taking more than one AP course. Thus, measures created strictly based on this CRDC value, provide a potentially distorted view.

9. Recommendations

Any conversation regarding AP completion begins with equal access and equitable enrollment. From there, there are a multitude of factors to consider with respect to taking the exam and passing the exam. In order to analyze why more students don't take the exam or why there are differences in test-taking between different racial/ethnic groups, we need to understand what factors would compel a student to participate in a year-long rigorous course and yet not take the exam. Are we pushing students into classes they aren't prepared for? Do students fail to take the exam because they do not think they will be successful? Are they not made aware of the benefits of passing the exam? If these are factors, then we must address providing adequate preparation and supports for the AP program, not only for enrollment, but for persistence. Do students opt out of the exam because of fees? If so, then educators must ensure transparency and clarity regarding fees and assistance. Concerning passing the exam, merely getting students into a class is not enough. We must ensure that students

have access to quality AP teachers, and that sufficient supports and tutoring for students who are close to passing, but need assistance are in place.

One area of potential research is analyzing AP completion by score and type of exam within school-districts at the school level. This would help develop a clearer picture of completion in regard to race/ethnicity and type of exam. Expanding on such research could include examining which districts have stronger completion rates for Hispanic students and why. Finally, another direction would be considering the role of persistence in Hispanic AP enrollment and completion. What factors contribute to persistence and completion of AP coursework for Hispanic students?

10. Conclusion

While disproportionality in AP access is fairly well-researched, completion gaps are less analyzed, especially for Hispanic students. When considering the economic impacts related to AP participation and completion, as well as STEM, this opportunity gap becomes even more relevant and pronounced, as there are far-reaching implications for lack of access to knowledge-based and tech-driven careers. Shedding light on the AP completion reveals that access to AP is not enough to ensure equity. We must continue to support students and provide resources to ensure completion of the exam in order to receive the full weight and promise of the AP program. This study provided data that highlights the inequity in AP completion for Hispanic students, which can serve as a beginning for a conversation that would shift focus towards considering what it means to be *successful* in AP coursework. When considering the need for educational equity and responsibility, examining Hispanic access to opportunity via AP completion is especially relevant, as these students comprise a significant percentage of our public school population and remain underserved. By addressing such systemic inequities and providing evidence of barriers to opportunity, I hope to encourage leadership to implement greater access and persistence strategies in order to ensure equitable AP completion for all students.

Acknowledgments

Not applicable.

Authors contributions

Not applicable.

Funding

Not applicable.

Competing interests

Not applicable.

Informed consent

Obtained.

Ethics approval

The Publication Ethics Committee of the Redfame Publishing.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

Provenance and peer review

Not commissioned; externally double-blind peer reviewed.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

Open access

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

References

Bittman, B., Davies, A., Russell, W. B., & Goussakova, E. (2017). Advanced Placement and the achievement gap in the

- 21st century: A multiple linear regression of marginalized populations in AP enrollment. *Research in Social Sciences and Technology*, 2(2). <https://doi.org/10.46303/ressat.02.02.2>
- Booth, E., Shields, J., & Carle, J. (2017). Advanced course completion rates among New Mexico high school students following changes in graduation requirements. REL 2018-278. *Regional Educational Laboratory Southwest*.
- Brown v. Board of Education, 347 U.S. 483 (1954).
- Burney, V. H. (2010). High achievement on Advanced Placement exams: The relationship of school-level contextual factors to performance. *Gifted Child Quarterly*, 54(2), 116-126. <https://doi.org/10.1177/0016986209355972>
- Cannon, M. (2011). View from the border: Removing barriers for urban gifted students. *Gifted Child Today*, 34(1), 26-30. <https://doi.org/10.1177/107621751103400109>
- Cisneros, J., Holloway-Libell, J., Gomez, L. M., Corley, K. M., & Powers, J. M. (2014). The Advanced Placement opportunity gap in Arizona: Access, participation, and success. *AASA journal of scholarship and practice*, 11(2), 20-33.
- Civil Rights Data Collection (2021). Retrieved from: <https://ocrdata.ed.gov/flex/Reports.aspx?type=school>
- College Board (2014). *The 10th annual Advanced Placement report to the nation*. Princeton, NJ.
- College Board (2017). *AP data: Archived data 2017*. Princeton, NJ. <https://research.collegeboard.org/programs/ap/data/archived/ap-2017>
- College Board (2020). AP at a Glance. <http://www.collegeboard.org>
- Crabtree, L., Richardson, S., & Lewis, C. (2019). The Gifted gap, STEM education, and economic immobility. *Journal of Advanced Academics*, 30(2), 203-231. <https://doi.org/10.1177/1932202x19829749>
- Gagnon, Douglas J., & Marybeth J. (2018). Racial/Ethnic test score gaps and the urban continuum. *Journal of Research in Rural Education*, 33(2), 1-16.
- Gándara, P., & Contreras, F. (2009). *The Latino education crisis: the consequences of failed social policies*. Harvard Press. <https://doi.org/10.5860/choice.47-4541>
- Graefe, A., & Ritchotte, J. (2019). An exploration of factors that predict Advanced Placement exam success for gifted Hispanic students. *Journal of Advanced Academics*, <https://doi.org/10.1177/1932202x19853194>
- Handwerk, P., Tognata, N., Coley, R. J., & Gitomer, D. H. (2008). Access to success: Patterns of Advanced Placement. *Educational Testing Service*.
- Judson, E., & Hobson, A. (2015). Growth and achievement trends of Advanced Placement (AP) exams in American high schools. *American Secondary Education*, 43(2), 59-76.
- Kettler, T., & Hurst, L. T. (2017). Advanced academic participation: A longitudinal analysis of ethnicity gaps in suburban schools. *Journal for the Education of the Gifted*, 40(1), 3-19. <https://doi.org/10.1177/0162353216686217>
- Ladson-Billings, G. (2013). Lack of achievement or loss of opportunity? In Carter, P. & Welner, K. (Ed.), *Closing the opportunity gap : What America must do to give every child an even chance*. Oxford Press: pp. 11-22. <https://doi.org/10.1093/acprof:oso/9780199982981.003.0002>
- Long, M. C., Conger, D., & Iatarola, P. (2012). Effects of high school course-taking on secondary and postsecondary success. *American Educational Research Journal*, 49(2), 285-322. <https://doi.org/10.3102/0002831211431952>
- Moller, S., & Stearns, E. (2012). Tracking success: high school curricula and labor market outcomes by race and gender. *Urban Education*, 47(6), 1025-1054. <https://doi.org/10.1177/0042085912454440>
- Naff, D., Parry, M., Ferguson, T., Palencia, V., Lenhardt, J., Tedona, E., ... & Baber, E. (2021). *Analyzing Advanced Placement (AP): Making the nation's most prominent college preparatory program more equitable*. Metropolitan Educational Research Consortium. https://scholarscompass.vcu.edu/merc_pubs/121/
- National Center for Education Statistics (NCES) (2019). The Condition of Education. <https://nces.ed.gov/pubs2019/2019144.pdf>.
- Oakes, J. (2005). *Keeping track: How schools structure inequality* (2nd ed.). Yale University Press. <https://doi.org/10.3726/978-1-4539-1735-0/29>
- Orfield, G., Kucsera, J., & Siegel-Hawley, G. (2012). E Pluribus...separation: Deepening double segregation for more students. *The Civil Rights Project*. <https://escholarship.org/uc/item/8g58m2v9>
- Orfield, G., Kucsera, J., & Siegel-Hawley, G. (2012). E Pluribus...separation: Deepening double segregation for more

- students. *The Civil Rights Project*. <https://escholarship.org/uc/item/8g58m2v9>
- Palencia, V., & Shakeshaft, C. (2022). All In? Inequities in Hispanic Access and Enrollment in Advanced Placement. *Journal of Latinos and Education*, 22(5), 1900-1912. <https://doi.org/10.1080/15348431.2022.2057990>
- Pew Research Center (2014). Hispanic trends: Demographic profile of Hispanics in Virginia, 2014. <https://www.pewhispanic.org/states/state/va/>
- Riegle-Crumb, C., & Grodsky, E. (2010). Racial-ethnic differences at the intersection of math course-taking and achievement. *Sociology of Education*, 83(3), 248-270. <https://doi.org/10.1177/0038040710375689>
- Scafidi, B., Clark, C., & Swinton, J. (2015). Who takes Advanced Placement (AP)? *Eastern Economic Journal*, 41(3), 346-369. <https://doi.org/10.1057/ej.2014.21>
- Tyson, K. (2013). Tracking segregation, and the opportunity gap: Closing the opportunity gap: What America must do to give every child an even chance, 169-180. <https://doi.org/10.1093/acprof:oso/9780199982981.003.0012>
- Virginia Department of Education (2020). Enrollment and Demographics. Retrieved from http://www.doe.virginia.gov/statistics_reports/enrollment/index.shtml