

Advanced Placement: The Dual Challenge of Equal Access and Effectiveness

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The Advanced Placement (AP) program offers an opportunity for students to earn college credit and develop college-ready skills in high school. The curriculum was initially designed for “superior” students at exclusive private schools. Recently, however, the AP program has expanded to serve more students from marginalized backgrounds, and equitable access has become one of its core objectives. Scholars have questioned whether AP can continue to offer effective college preparation while expanding beyond the populations it was initially designed to serve. This literature review summarizes existing research on whether the AP program has achieved its dual goals of equal access and effectiveness. The extant literature suggests that, despite impressive gains in access to AP, significant barriers remain to its becoming a program that ensures equal access for all students and effectively prepares them for college coursework. Assessing whether these barriers can be overcome, however, demands new approaches to AP research.

KEYWORDS: advanced coursework, college readiness, equity, academic tracking

The Advanced Placement (AP) program was designed as a collaboration of elite high schools and colleges to engage “superior” high school students with work aligned to university curricula (Blackmer et al., 1952). More than a half-century since its inception, however, the goals of AP have evolved. Two sentences from the opening section of the College Board’s “The 10th AP Annual Report to the Nation” (2014) illustrate the program’s elaborated objectives:

The Advanced Placement Program—the collaborative community of AP teachers and students, states, districts, schools, colleges, and universities committed to the daily work of **developing college-level knowledge and skills** [*emphasis in original*—has grown significantly in the past 10 years. This expansion is built on the deep conviction that all students who are academically prepared—no matter their location, background, or socioeconomic status—deserve the opportunity to access the rigor and benefits of AP. (p. 5)

The College Board views its AP program as capable of enhancing both college-ready skills and equal opportunity in U.S. high schools. The organization has published numerous materials offering optimistic assessments of rapid expansion to previously underserved student populations and positive college-ready outcomes for those who engage with the program (see College Board, 2014; Hargrove, Godin, & Dodd, 2008; Morgan & Maneckshana, 2000; Packer, 2012).

The expansion of college readiness is a significant priority among educational leaders and policymakers given its importance to the U.S. economy. The Lumina Foundation (2012) predicts that by 2025, 60% of new jobs will require a postsecondary credential. Because current inequities of college-going outcomes vary along the lines of race, ethnicity, and socioeconomic status, social stratifications may harden if policies fail to interrupt current trends. Present circumstances call for an expansion of college going, particularly among traditionally underserved populations.

As the value of a college degree has continued to rise, so has the appeal of AP courses to schools and students. The AP program has been put forth as a potential means through which an expansion of college readiness might be achieved. Bipartisan political support has facilitated the program's expansion. In the 1990s, the federal government began subsidizing AP exam fees and contributed \$25 million dollars to expand the program into schools with high concentrations of low-income students (Schneider, 2011). In 1994, only 14.9% of students graduated high school with AP credit, but by 2013, that number had increased to more than 39% (Malkus, 2016). Although they still lag behind their White and Asian peers, African American students increased their AP participation rate by 200% between 1994 and 2013 to an AP participation rate of 27%. Thirty six percent of Latina/o students in 2013 graduated with AP course credit compared with 41% of White students (Malkus, 2016). Additionally, access to AP for students whose parents did not graduate high school has expanded from 8.4% participation in 1994 to 29.1% in 2013. Table 3 summarizes the expansion of AP by student group, demonstrating that the participation of students from marginalized populations saw particularly robust increases. Indeed, the College Board (2014) demonstrates that much of the AP expansion in public schools over the past 2 years has occurred among low-income populations (see Table 4). Though rural districts lag significantly behind suburban and urban districts in the number of students enrolled in AP courses (Gagnon & Mattingly, 2015), the College Board has made explicit their desire to expand to more rural school districts and even offers a fellowship specifically for rural teachers who want to develop AP courses (College Board, 2016b).

Alongside this rapid expansion, AP has aimed to offer rigorous, high-quality instruction. While the gains in access have been indisputable, questions have arisen regarding the capacity of a program that seeks excellence and equity to achieve both of its goals (Schneider, 2009). Certainly, a program originally designed for a narrow group of students will face substantial hurdles as it tries to widen its reach. Can AP equitably attract diverse populations of students? If AP successfully reaches more students, can courses develop "college-level knowledge and skills" to improve the college readiness of students who have historically been denied access to the program? In short, can AP expand toward greater

access without sacrificing its effectiveness? The current policies of the College Board suggest it strongly believes it can. The academic literature has debated this proposition at length.

This review of the literature will address the expansion of AP across two main axes. The first axis addresses AP participation equity. AP participation inequality stems from fewer AP offerings at schools serving primarily low-income students of color and unequal access to AP for underrepresented students at predominantly White high schools. The second axis addresses issues of AP course effectiveness. Issues of effectiveness concern whether AP classes achieve their stated objective of developing college-level knowledge and skill.

Ultimately, the existing literature on AP speaks to essential debates in educational inequality—namely, whether academic disparities are primarily rooted in student families, schools, or social structures. First, challenges of accessible and effective AP programs for low-income students may be an extension of hardships endured by many low-income students and their families. The Coleman Report (Coleman et al., 1966) argued that academic disparities are more strongly associated with family characteristics than in-school factors, and many recent analyses have emphasized the academic deprivations associated with growing up in a low-income household (Berliner, 2013; Rothstein, 2009). Second, challenges of AP access and effectiveness for students from marginalized backgrounds might stem from the ineffective and culturally misaligned pedagogy students of color endure (Darling-Hammond, 2000; Ladson-Billings, 1995). Last, from a structural lens, schools might prime working-class students for working-class jobs (Bowles & Gintis, 1976); they might value particular cultural knowledge and dispositions over others (Bourdieu, 1973); or they might contend with parents from elite families who continually seek new means to distinguish their children, and in so doing, “effectively maintain inequality” (Lucas, 2001). An interrogation of AP patterns may provide a specific lens into how familial, pedagogical, and structural sources of inequity operate to produce disparate academic outcomes.

In what follows, I analyze questions of AP participation and effectiveness. First, I present background information on the AP program. Next, I summarize literature on the capacity of AP to fulfill its “deep conviction” that more students, regardless of “location, background, or socioeconomic status” can enroll in AP. I argue that, based on the literature, remarkable strides have been made toward equitable access, but the development of an AP program with equal access for all faces stubborn challenges that are yet to be overcome. Next, I summarize literature on whether AP courses offer rigorous, college-preparatory learning experiences, particularly given the program’s changing demographics. In this respect, the findings are less than optimistic. As more students have enrolled in AP coursework, the program has struggled to maintain its effectiveness at preparing students to succeed in college. In its quest for equity and excellence, the AP program has significant room to grow.

While the AP literature mostly asserts substantial challenges of the AP program to achieve equal access and maintain effectiveness, it provides little insight as to why such barriers exist and how they might be overcome. Thus, drawing on some of the theories referenced above, I offer three possible interpretations of the findings of AP research, each of which offer a plausible explanation of AP outcomes

aligned with existing educational theory, but none with enough evidence to be conclusive. In closing, I argue that AP research more grounded in theory, inclusive of causal designs, and balanced between quantitative and qualitative approaches could help discern whether AP can meaningfully enhance both access and academic outcomes for students from marginalized backgrounds.

Method

The search for articles on AP equity and effectiveness was conducted primarily via Google Scholar using various combinations of the search terms “Advanced Placement,” “access,” “equity,” and “tracking.” The tracking term was included due to the prominence of tracking scholarship in conversations about equity as well as its relevance to AP participation. In addition, I investigated resources of the College Board using the Google search engine and watched conference presentations via an online live stream of the 2016 AP conference in Anaheim, California. The bibliographies of the articles selected for analysis were subsequently investigated for more articles regarding AP trends.

Distinct selection criteria were applied depending on the purpose of the article. For general information on AP, articles were selected based on the extent to which data were current and complete. Statistical data from organizations such as the College Board, the National Center for Education Statistics (2013), and the U.S. Census Bureau (2015) were synthesized to present a holistic representation of current trends in AP. Occasionally, analysis was supplemented by news articles when certain AP statistics were not presented by the College Board or the data were no longer available online. For example, an article by Caralee J. Adams (2014) in *Education Week* provided 2013 data on the AP credit policies of postsecondary institutions—information that was not readily available from the College Board online during the time of the inquiry. Often, articles were excluded for redundancy with previously reported information. For example, resources from the College Board frequently reproduced information from earlier reports regarding trends in AP equity and effectiveness.

Selection criteria for studies that evaluated the equity and effectiveness of the AP program were more rigorous: (1) To emphasize relevance to today’s AP program, included articles were constrained to being published in a 25-year period, between 1992 and 2017, and Google searches were modified to address this constraint. However, for historical or theoretical research, the restriction was relaxed. (2) References were only selected from academic books and peer-reviewed journal articles. Dissertations and magazine articles were excluded. (3) Articles needed to emphasize either equity or effectiveness of AP programs. For example, articles discussing whether the program is currently effective or how its effectiveness has changed over time were included. Also, articles discussing whether race and/or socioeconomic status were relevant to AP access and effectiveness were included. Given the focus of this review, discussions of gender were excluded, although this decision was made for the sake of parsimony and not to diminish the importance of gender equity in AP. (4) References included texts that were not centrally about AP, though at some point addressed AP in the article. Often, the case was that an article was focused on tracking and unequal achievement more generally, but trends of AP-specific patterns were also highlighted by the analysis.

The article by Yonezawa et al. (2002) is a qualitative example of an article about tracking with implications for AP, and the article by Kelly (2009) represents a quantitative example. (5) Articles that presented very similar results to another article were excluded if their design was less robust. For example, a 2011 article by Bryan, Glynn, and Kittleson that analyzes 288 students in a suburban district finds that motivation and self-efficacy in science are associated with AP course taking. The article analyzed here by Sadler et al. (2014) makes a similar finding with a sample of more than 6,000 students across multiple districts. All articles with findings relevant to AP participation and effectiveness are summarized in Tables 1 and 2.

Advanced Placement: Background

AP is the most common means through which high school students earn college credit in high school. Whether an AP student earns college credit is determined by an end-of-the-year test scored from 1 to 5. A 2013 study of 1,380 institutions by the College Board finds that 68% of policies offer credit for a score of 3 or higher, 30% offer credit for a score of 4 or higher, and 2%, most notably Harvard University, only offer credit for a score of 5. Eight (<1%) institutions do not accept AP course credit (Adams, 2014). In 2016, 57.9% of AP exam takers earned a 3 or higher, and 33.5% earned a 4 or higher. Not all students who take an AP course take the test. Past estimates have suggested that 30% to 40% of the students neglect to do so (National Research Council, 2002). In 2016, more than 2.5 million high school students took more than 4.7 million AP tests, up from less than 4.5 million the previous year (College Board, 2016a). The College Board sets no age limits with respect to the AP exams, although juniors and seniors comprise a significant majority of test takers. About 2.1 million of the tests were taken by high school seniors and 1.8 million by juniors. Nearly half of the 628,000 tests taken by sophomores were in World or European history. Freshmen took about 177,000 tests, mostly in Human Geography (College Board, 2016a). AP has become ubiquitous among students who seek college preparatory curricula in high school.

The AP curriculum is standardized across school campuses through standardized testing and curricula. The tests, while undergoing regular revisions, generally constitute a mix of multiple-choice and open-ended questions. For example, the U.S. history AP exam contains 55 multiple-choice questions, 4 short answer questions, and 2 essays, one requiring an analysis of a series of historical documents (College Board, 2015). The exams are designed by a team of college professors assembled by the College Board and assess a combination of historical thinking skills and content. The U.S. History content spans from the arrival of Columbus to the present day, and approximately 90% of the exam questions address history between 1607 and 1980. The Calculus AB exam approaches different content with a similar format. The test has 45 multiple-choice questions and 6 free-response questions that ask students to solve a problem and demonstrate their work. The College Board also disseminates curricular materials, offers professional development to teachers, and audits courses to ensure the integrity of AP classes (College Board, n.d.-b). An objective of the College Board is that the AP program represents a standardized college preparatory experience for students across the United States.

(Text continues on page 684)

TABLE 1
Empirical articles on the challenges of AP access

Author(s) (year)	Data, method(s), and research question(s) ^a	Findings regarding AP access
Clotfelter, Ladd, and Vigdor (2002)	<i>Data and method:</i> A construction of “segregation indices” using course enrollment data of each North Carolina public school from the North Carolina Department of Public Instruction <i>Research question:</i> What is the nature of within school segregation for 1st-, 4th-, 7th-, and 10th-grade students in North Carolina?	Segregation has increased in schools over the past decade, and in-school segregation is particularly pronounced in high schools. The authors argue that the segregation may result, in part, from high school tracking policies in which AP classes play a role.
College Board (2014)	<i>Data and method:</i> Statistical calculations of AP test participation and results for students across the United States <i>Research question:</i> What is the nature of AP exam participation in the United States?	The AP program has expanded and is approaching equitable participation across race, ethnicity, and socioeconomic status, but room for growth remains.
Conger, Long, and Iatarola (2009)	<i>Data and method:</i> Longitudinal data on two cohorts of Florida students between 8th grade and 12th grade and the application of a multivariate probit model to predict their participation in AP coursework <i>Research questions:</i> Would removing differences between students before they enter high school eliminate course-taking gaps? Would reallocating students across high schools reduce course-taking gaps?	White students are more likely to take advanced classes than Black and Latina/o students, although those disparities are eliminated after controlling for prior achievement. Controlling for achievement also substantially reduces gaps in advanced course taking by socioeconomic status.
Domina and Saldana (2012)	<i>Data and method:</i> Logistic regression models of representative, longitudinal data of 1982, 1992, and 2004 high school graduates’ math coursework <i>Research question:</i> What have been the consequences of academic intensification on racial, class-based, and skill-based inequalities in math course taking achievement?	The nationwide push to intensify math instruction reduced the degree of racial, class-based, and skills-based inequality in high school math course taking patterns. However, in Calculus, the inequalities persisted and may have even widened between high- and low-skilled students.
Gamoran (1992)	<i>Data and method:</i> A multisite case study and logistic regression used to estimate the effect of prior achievement on ninth-grade track placement in English for students across five districts—four public and one Catholic <i>Research question:</i> What are the processes and criteria for assignment to honors English class?	At least three of the five districts rely heavily on students’ prior track placement for placement in English honors. For high achievers, socioeconomic status plays little role in track placement, but for low achievers, socioeconomic status is significantly associated with enhanced access to honors classes.
Gándara (1995)	<i>Data and method:</i> Retrospective interviews of 50 Mexican Americans who had now earned advanced degrees at prestigious U.S. institutions <i>Research question:</i> How do high-achieving Chicanos overcome poverty and disadvantage?	Mexican American parents struggle to support their children in navigating access to AP in schools.

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TABLE 1 (continued)

Author(s) (year)	Data, method(s), and research question(s) ^a	Findings regarding AP access
Iatarola, Conger, and Long (2011)	<p><i>Data and method:</i> Multivariate regression predicting the number of AP courses offered in 1,935 school observations</p> <p><i>Research question:</i> What are the factors associated with the size of a school's AP program?</p>	<p>The size of a school's AP program is most prominently determined by the existence of a critical mass of incoming students with above average eighth-grade test scores.</p>
Jeong (2009)	<p><i>Data and method:</i> Two-level model of AP programs using National Center for Education Statistics survey of 750 public, Catholic, and other private schools</p> <p><i>Research question:</i> Have state AP incentives helped students enroll in AP and succeed on the exams?</p>	<p>Incentives were associated with an improved likelihood that low-income AP students took the AP exam, but policies had little to no association with AP enrollment.</p>
Kalogrides and Loeb (2013)	<p><i>Data:</i> Regression models of administrative data from three school districts across the country</p> <p><i>Research question:</i> To what extent are students sorted across classrooms within schools across the lines of race/ethnicity, poverty status, and prior achievement? To what extent does in-school sorting vary across grade levels? To what extent can sorting be explained by prior achievement?</p>	<p>Significant differences in racial/ethnic, socioeconomic, and achievement level compositions of classrooms exist within schools. Controlling for prior achievement accounts for most, but not all, of the sorting by race/ethnicity and socioeconomic status.</p>
Kelly (2009)	<p><i>Data and method:</i> A series of logistic regressions on 14,283 students in the National Education Longitudinal Study of 1988</p> <p><i>Research question:</i> To what extent can differences in course taking among Black and White students be attributed to differences in academic achievement or other factors that are associated with individual students, such as family background?</p>	<p>Controlling for family background and prior achievement results in no significant correlation between race and track placement. However, a significant correlation remains in schools that are predominantly White.</p>
Klopfenstein (2004a)	<p><i>Data and method:</i> Negative binomial regression analysis of all regular instruction public high schools in Texas</p> <p><i>Research question:</i> How did the participation of traditionally underserved students change during the AP expansion of the 1990s?</p>	<p>The AP incentives in Texas did not significantly close gaps in AP participation by race or socioeconomic status.</p>
Klopfenstein (2004b)	<p><i>Data and method:</i> A logit regression analysis of all White, Black, and Hispanic students in Texas public schools</p> <p><i>Research question:</i> What factors predict the participation of Black and Hispanic students in AP?</p>	<p>Black and Hispanic students are underrepresented in AP courses, and those gaps remain even when controlling for observable characteristics such as parent education and income level. The model does not control for prior achievement. Same-race role models enhance AP participation for some groups of students.</p>

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TABLE 1 (continued)

Author(s) (year)	Data, method(s), and research question(s) ^a	Findings regarding AP access
Klugman (2013)	<p><i>Data and method:</i> A multilevel (schools nested in districts), negative binomial regression analysis of a panel data set of California high schools between 1997 and 2006 and interviews of 11 school district officials</p> <p><i>Research question:</i> Did California policies to expand AP participation narrow inequities along racial and socioeconomic lines?</p>	<p>Although AP access increased across all races and levels of income in California, schools serving privileged groups maintained their advantages by expanding AP participation at greater rates than schools serving traditionally underserved populations.</p>
Lewis and Diamond (2015)	<p><i>Data and method:</i> 5 years of 170 interviews and data gathering at a diverse “liberal” suburban high school</p> <p><i>Research question:</i> How are academic inequities maintained at a diverse, “liberal” high school?</p>	<p>Processes of unequal AP participation occur as teachers and staff interact with students and parents in ways that structure inequality despite “best” intentions.</p>
Lucas (2001)	<p><i>Data and method:</i> Probit model analysis of High School and Beyond data for the 1980 cohort predicting student course placement</p> <p><i>Research question:</i> Is inequality “effectively maintained” through tracking practices at high schools?</p>	<p>As a universal education level is achieved, members of more privileged social background pursue qualitative distinctions such as AP classes to maintain inequality.</p>
Lucas and Berends (2007)	<p><i>Data and method:</i> A multilevel logistic regression model predicting track placement by race and school diversity consisting of 15,941 students from the 1980 High School and Beyond data set</p> <p><i>Research question:</i> How do schools differ in their racial/ethnic gaps in track placement?</p>	<p>Black students at less likely to be in advanced courses when they attend more diverse schools.</p>
Malkus (2016)	<p><i>Data and method:</i> Statistical analysis using National Coalition for Education Statistics data and National Assessment of Education Progress</p> <p><i>Research question:</i> What is the nature of AP participation by race/ethnicity and socioeconomic status over time? Has AP expansion had a detrimental impact on the quality of AP classes and the average AP student?</p>	<p>AP has been expanding for all student groups. The National Assessment of Education Progress scores of AP students, however, have not subsided since AP expansion, suggesting that the academic ability of the average AP student has not changed significantly as participation has increased.</p>
Margolis, Estrella, Goode, Holme, and Nao (2008)	<p><i>Data and method:</i> Observations and interviews at three schools, one in a high-income neighborhood and two in a low-income neighborhood</p> <p><i>Research question:</i> How do race and class shape access to computer education in high school?</p>	<p>At the two schools in low-income neighborhoods, access to college preparatory computing curricula (e.g., AP Computer Science) was restricted in comparison to the school in the wealthy neighborhood. At the school in the wealthy neighborhood, few Black and Latino students participated in these courses.</p>

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TABLE 1 (continued)

Author(s) (year)	Data, method(s), and research question(s) ^a	Findings regarding AP access
Mickelson and Everet (2008)	<p><i>Data and method:</i> Using aggregate data for all seniors in North Carolina in 2005, analyses conducted of between- and within-school variations of college-level track placement</p> <p><i>Research question:</i> Do student and school demographic characteristics predict track placement in North Carolina?</p>	<p>Tracking reproduces race and class stratifications, as students in most affluent districts are significantly more likely to enroll in the college track than students from the least affluent districts.</p>
Noguera (2003)	<p><i>Data and method:</i> Participatory research of Berkeley High School “Diversity Project”</p> <p><i>Research question:</i> What are ways in which schools serving diverse populations can empower their most marginalized populations?</p>	<p>The social capital of middle- and high-income parents allows them to maintain privilege for their children. Conscientious efforts to address issues of equity, however, can mitigate challenges of unequal educational opportunity.</p>
Oakes (1985)	<p><i>Data and method:</i> In-depth observations and interviews of 25 secondary schools in various regions of the United States</p> <p><i>Research question:</i> How does academic tracking shape the schooling experiences of U.S. secondary students?</p>	<p>Secondary school tracking is pervasive across U.S. schools and is significant in shaping the learning opportunities for students by race, ethnicity, and socioeconomic status.</p>
Oakes and Guiton (1995)	<p><i>Data and methods:</i> A 2-year, mixed methods examination of tracking practices at three comprehensive high schools</p> <p><i>Research question:</i> What are the dynamics of tracking decisions that sort students in high school?</p>	<p>Curriculum, school cultures, and political decisions of teachers and staff direct high school tracking decisions.</p>
Solórzano and Ornelas (2004)	<p><i>Data and method:</i> An examination of the most robust AP programs in California using data from the California Department of Education in 2000–2001</p> <p><i>Research question:</i> What is the representation of Latina/o and African American students in AP courses in California?</p>	<p>In California, Latina/o and African American students are substantially underrepresented in AP courses.</p>
Theokas and Saaris (2013)	<p><i>Data and method:</i> Statistical exploration of AP participation by merging College Board data with Common Core of Data in 2010 to explore the characteristics of AP exam takers</p> <p><i>Research question:</i> What are the characteristics of students who take AP exams?</p>	<p>Nationally, a 10.1% gap exists between low-income and non-low-income students in AP exam participation rates. Gaps also exist by race, but are smaller.</p>

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TABLE 1 (continued)

Author(s) (year)	Data, method(s), and research question(s) ^a	Findings regarding AP access
Tyson (2011)	<i>Data and method:</i> Ethnography, in-depth interviews, and surveys of 250 students at more than 30 elementary and secondary schools <i>Research question:</i> Why have students learned to associate achievement with Whiteness?	Students select into classes where they perceive they will be most comfortable academically and socially. School tracking practices and gifted education policies often influence Black students to avoid advanced courses.
Wells and Serma (1996)	<i>Data and method:</i> Qualitative, 3-year investigation of 10 racially/ethnically and socioeconomically diverse schools attempting to de-track curricula. <i>Research question:</i> How do elite parents resist the de-tracking movement in their children's schools?	Elite parents are able to access political actors and employ their cultural capital to block policies that would undo tracking that privileges their children.
Yonezawa, Wells, and Serma (2002)	<i>Data and method:</i> 423 interviews and 75 observations of six racially/ethnically diverse high schools <i>Research question:</i> Why do few students from marginalized backgrounds choose high-track classrooms even when schools remove barriers to access?	African American and Latina/o students do not feel adequate or comfortable in high-track classrooms and largely prefer the security of the low-track classrooms.
Zarate and Pachon (2006)	<i>Data:</i> Statistical analyses of data on 1,094 schools from the California Department of Education. <i>Research question:</i> Do racial/ethnic and socioeconomic composition of schools predict their AP offerings?	Schools serving predominantly students of color offer significantly fewer AP courses than schools serving predominantly White students.

Note. AP = Advanced Placement. This table includes all empirical articles in the section "The Challenge of Equal Access" with findings relevant to participation equity in AP.

^aResearch questions were not always made explicit. Some were inferred from the text.

TABLE 2
Empirical articles on the challenges of AP effectiveness

Author(s) (year)	Data, method(s), and research question ^a	Findings regarding AP effectiveness
Adelman (1999)	<i>Data and method:</i> Regression analysis of high school transcript records, test scores, and surveys from students who were 10th graders in 1980 <i>Research question:</i> What contributes most to bachelor's degree completion of students who attend 4-year colleges at any time during their undergraduate careers?	Academic variables were more important than socioeconomic status in determining college completion, and the intensity of one's coursework was of particular importance to future educational attainment. AP was a part of the measure of academic intensity.
Adelman (2006)	<i>Data and method:</i> Regression analysis of high school transcript records, test scores, and surveys from students who were eighth graders in 1988 <i>Research question:</i> What factors contribute to college degree attainment for U.S. high school students?	A replication of the 1999 study finding that academic intensity was of particular importance to college success. AP was a part of the measure of academic intensity.
Baker-Bell (2013)	<i>Data and method:</i> Interviews and observations of a classroom of 27 students and their teacher, all of whom were African American <i>Research question:</i> How can critical pedagogies be employed to enhance learning for African American students in an English AP course?	Critical language pedagogies can help students develop appreciation for African American language and to question linguistic cultural dominance in an AP classroom.
Dougherty, Mellor, and Jian (2006)	<i>Data and method:</i> Linear regression analysis of longitudinal data on 67,412 Texas eighth graders in 1994 and their college graduation 5 years after high school <i>Research question:</i> What is the association between college graduation and participation in AP?	The percent of a school's students who pass AP exams is significantly associated with the percent of its students who graduate from college.
Duncheon (2017)	<i>Data and method:</i> Longitudinal interviews between high school and college of eight students in an urban district with AP experience <i>Research question:</i> How do high achieving, first-generation, low-income, Latinx students from an urban high school navigate the college transition?	AP writing assignments, specifically in AP English, were not well aligned with college expectations.
Foust, Herberg-Davis, and Callahan (2009)	<i>Data and method:</i> Interviews of 84 students from four school sites with an AP or IB program <i>Research question:</i> What do AP and IB student perceive to be the benefit of participation in AP and IB courses?	Students reported pride, relationships, and a productive atmosphere as the perceived advantages of taking AP coursework; however, they also reported stress and exhaustion as disadvantages.
Geiser and Santelices (2004)	<i>Data and method:</i> Regression analysis of 81,445 freshmen in the University of California system <i>Research question:</i> To what extent is experience in AP and AP test performance associated with college GPA and college persistence?	Participation in AP has minimal association with college GPA and persistence outcomes, though passing an AP exam is positively and significantly associated with college-going outcomes.

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TABLE 2 (continued)

Author(s) (year)	Data, method(s), and research question ^a	Findings regarding AP effectiveness
Hallett and Venegas (2011)	<i>Data and method:</i> Interviews and observations of 48 primarily Black and Latina/o high school seniors who took AP classes <i>Research question:</i> How have students experienced the increased access to AP?	Participation in AP for students at schools serving low-income communities was not adequate to prepare students for AP exams or college-level work.
Hertberg-Davis and Callahan (2008)	<i>Data and method:</i> Interviews and observations of 200 teachers and 300 students in 23 schools, employing a grounded theory approach <i>Research question:</i> How do teachers and students perceive AP and IB course work?	Students report that AP classes are the most challenging at their schools and find them to be satisfying educational experiences.
Judson and Hobson (2015)	<i>Data and method:</i> Analysis of publicly available College Board data between 1996 and 2012 <i>Research question:</i> As participation in AP has expanded, how has expansion correlated with achievement on AP exams?	The expansion of AP has been associated with a marked increase in nonpassing AP exam scores, particularly among students from marginalized backgrounds.
Klopfenstein (2010)	<i>Data and method:</i> Measuring probability functions of total semesters enrolled in college for 32,922 students in Texas <i>Research question:</i> Does the AP program save taxpayers money through reduced college costs?	Average time to degree was not significantly improved for students who entered college with AP credit, indicating little likelihood that the AP program saves money.
Klopfenstein and Thomas (2009)	<i>Data and method:</i> Regression analysis of all Texas public schools students who entered public universities immediately after graduating in May 1999 <i>Research question:</i> Does AP course-taking cause college success?	The authors find no evidence that taking AP increases likelihood of college success after controlling for non-AP course taking.
Kyburg, Hertberg-Davis, and Callahan (2008)	<i>Data and method:</i> Interviews and observations of 75 students, 9 administrators, 4 counselors, and 43 teachers at three urban high schools <i>Research question:</i> What school policies contribute to the successes and frustrations of students enrolled in AP and IB coursework?	Successful programs are guided by flexible scaffolding and a willingness to support diverse students and are grounded in the belief that all students can succeed.
Lichten (2000)	<i>Data and method:</i> An analysis of exam passage rates over 50 years of history of the AP program <i>Research question:</i> Has the quality of the AP program maintained as it has expanded?	There exists a “diminishing returns” to increased participation in AP.
Lichten (2010)	<i>Data and method:</i> A case study of 41 schools in the Philadelphia public school district. <i>Research question:</i> How well have AP programs at urban schools prepared students to pass AP tests?	In Philadelphia, AP programs at nonselective urban schools have failed to adequately prepare students for AP exams.
Mattern, Shaw, and Xiong (2009)	<i>Data and method:</i> ANCOVA and logistic regression analyses of the college grades and persistence of 196,364 college students <i>Research question:</i> What is the association between AP and college outcomes?	There are numerous college performance and persistence benefits to taking AP and passing an exam, even after controlling for other measures of achievement. Though findings were less significant for AP students who did not pass the AP exam.

(continued)

TABLE 2 (continued)

Author(s) (year)	Data, method(s), and research question ^a	Findings regarding AP effectiveness
Morgan and Klaric (2007)	<i>Data and method:</i> Regression techniques of college data for 72,457 students from the class of 1994 <i>Research question:</i> How do AP students' course taking and performance differ from non-AP students?	AP students who pass AP tests perform significantly better in college courses than non-AP students. Students who take AP courses are not discouraged from further coursework in the subject areas of their AP courses.
Parker et al. (2011)	<i>Data and methods:</i> Mixed methods, quasi-experimental design of AP curricula delivered to 289 students across four schools <i>Research question:</i> How can deeper, project-based learning affect the learning in AP classrooms?	While occasionally frustrated by the project-based methods, students in project-based learning group ultimately felt prepared for the AP test and performed significantly better than students in traditionally instructed AP courses.
Sadler and Sommert (2010)	<i>Data and method:</i> Hierarchical linear modeling of the academic performance of 124 students in first semester science courses at 55 randomly selected universities <i>Research question:</i> Does AP experience predict performance in college science courses?	Taking an AP course and passing the exam was significantly associated with improved college science performance. In chemistry, merely taking the course was associated with improved college performance.
Sadler, Sommert, Hazari, and Tai (2014)	<i>Data and method:</i> A logistic regression analysis of 50-item retrospective survey of the high school course taking of 4,691 college students at 34 randomly selected colleges <i>Research question:</i> How does advanced coursework experience shape students' STEM career aspirations?	Advanced science courses—though not specifically AP—enhance student interest in careers in science.
Scott, Tolson, and Lee (2010)	<i>Data and method:</i> ANOVA of 9,075 college students during two fall semesters <i>Research question:</i> Do students with AP credit perform better in their first semester of college?	Controlling for SAT scores and class rank, students who took AP earned better grades in college.
Sheets (1995)	<i>Data and method:</i> Narrative of classroom curriculum in AP Spanish that emphasized culturally centered pedagogy <i>Research question:</i> How can culturally relevant practices be incorporated in a Spanish AP class to improve the performance of Latina/o students?	Culturally relevant practices that bridged students' home and school lives and maintained high expectations helped the students who might not otherwise succeed in AP.
Speroni (2011)	<i>Data and method:</i> Regressed college outcomes on dual enrollment and AP using data of all the graduating cohort of 2001–2002 school year in Florida (229,828 students) and National Student Clearinghouse data on college enrollment <i>Research question:</i> How do AP students and students who take dual enrollment compare with respect to college-going outcomes?	AP students are more likely than dual-enrollment students to attend a 4-year university.

Note. ANCOVA = analysis of covariance; ANOVA = analysis of variance; AP = Advanced Placement; GPA = grade point average; IB = International Baccalaureate; STEM = science, technology, engineering, and mathematics. This table includes all articles in the section “The Challenge of Effectiveness” with findings relevant to the effective implementation of AP.

^a Research questions were frequently not made explicit. Most were inferred from the text.

AP classes offer additional benefits to students beyond the potential for college credit. AP courses on one's high school transcript are viewed as indicators of academic rigor and are regarded favorably during the college admissions process. Many schools and universities also award AP course grades with an additional point when calculating grade point average (GPA; Solórzano & Ornelas, 2004). Students who enroll in AP can thus increase their likelihood of earning an acceptance to their top-choice university (Klopfenstein, 2010). AP courses often attract strong teachers (Clotfelter et al., 2006; Klopfenstein & Thomas, 2010) but require substantial and sometimes overwhelming time commitments (Foust et al., 2008). Taking an AP class, even if one does not pass the test, thus provides substantial benefits to students able and willing to manage the workload.

In light of the perceived benefits, the AP program has faced pressures to expand its reach. However, some barriers to access for students from marginalized populations are stubbornly persistent. In what follows, I outline the challenges of equal participation in AP, a program that was initially developed for students at elite high schools, and is now attempting to equalize access across race, ethnicity, and class.

The Challenge of Equal Access

Expanding Access to Advanced Placement

The growth of the AP program has been fairly steady since its inception. The sociopolitical context of mid-20th-century United States spurred the birth of a program for advanced students to accelerate their college educations. First, the passage of the G.I. Bill vastly expanded the demand for college education, and educational leaders were investigating ways to enhance the efficiency of postsecondary learning (Lacy, 2010). Second, the Cold War provoked nationwide angst regarding the effectiveness of gifted education. Scholars often describe the birth of the AP in the context of the Cold War and the launch of the Soviet satellite, Sputnik (Hampel, 1986; Lacy, 2010; Schneider, 2009).

Amid the 1950s, emphasis on secondary curricula arose the construction of grim narratives of high school academics. A perceived incongruence surfaced between secondary and postsecondary learning (Rothschild, 1999). Cognitive psychologist Jerome Seymour Bruner explains that educational reformers of the 1950s were concerned that "the shoddy stuff they taught" in high schools necessitated a program that could "narrow the gap between knowledge locked up in the university library or the scholar's mind and the fare being taught in the schools" (Bruner, 1983, pp. 179–180). Additionally, parents and professionals perceived schools as doing little to counteract rising delinquency among teenagers (Gilbert, 1988). These "shoddy" high schools were not fit to meet the educational needs of a nation with a growing interest in college education and the ominous threat of the Soviet Union. The context was ripe for a program that sought to accelerate learning for the country's most gifted students.

The Ford Foundation funded a series of projects to improve the efficiency of postsecondary education for elite students. These programs laid the groundwork for AP. For example, the Kenyon Plan involved a sample of 27 schools spread across the nation, wherein 532 students enrolled in advanced coursework and took

TABLE 3*Percent graduates with AP course credit, 1994 to 2013*

	1994	2005	2009	2013
Race/ethnicity				
Asian	29.4	48.6	66.2	69.8
White	15.1	29.8	37.3	41.0
African American	9.0	18.3	22.2	27.0
Latina/o	14.8	28.5	33.8	36.5
Parent education				
Did not finish high school	8.4	22.1	26.9	29.1
Graduated college	24.1	38.2	47.9	54.4

Note. AP = Advanced Placement.

Source. Malkus (2016) from the National Center for Education Statistics, a nationally representative sample of high school students (1994, 2005, 2009, 2013).

corresponding exams to earn college credit (Lacy, 2010). In a separate endeavor, the term *advanced placement* was coined by a joint effort between Northeastern elite boarding schools, Harvard, Princeton, and Yale (Rothschild, 1999). The program would focus exclusively on the highest achieving boys and girls in the most elite private schools, offering them the opportunity for early completion of college-level courses. The College Board, which until then had focused primarily on college entrance examinations, adopted control of the AP program in 1955.

Early designers of AP sought to serve the nation's elite. The second director of AP asserted that the program was based on the presumption that "all students are not created equal" (Dudley, 1958, as cited in Schneider, 2009, p. 817). The program in its infancy was certainly fixated on identification and preparation of the "best and the brightest." In the "tug of war" between prestige and access (Schneider, 2009), the early stages of the AP program were dominated by prestige.

Over time, however, the AP program has evolved fairly consistently in the direction of greater access (Lacy, 2010; Valentine, 1987). In the late 1960s and early 1970s, Lyndon Johnson's *Great Society* pushed educational leaders to consider more egalitarian approaches to education, and the AP program followed suit. It began to expand outside of elite circles. The 1983 *A Nation at Risk* report briefly redirected schools away from equitable ideals and toward cultivating the skills of the most elite students. The corresponding AP expansion slowdown of the 1980s was reversed in the 1990s when much federal funding targeted low-income communities for AP (Klopfenstein, 2004a). Again, despite persistent concerns that the program might become watered down by incorporating students with inferior academic preparation (Lichten, 2000), the percentage of students of color in the program grew substantially from 12% in 1979 to 31% in 2002 (Schneider, 2009). More students from diverse racial, ethnic, and socioeconomic backgrounds have begun to engage with AP curricula (Table 3).

The AP program has also expanded in terms of its course offerings. In 1952, AP began as a pilot program featuring 11 courses (College Board, 2003), and now,

TABLE 4*Growth in AP participation among low-income^a students*

	Class of 2003	Class of 2013
Total AP examinees	514,163	1,003,430
Total low-income AP examinees	58,489	275,864
Percentage of examinees who are low-income	11.3	27.5

Note. AP = Advanced Placement.

^aDefined as students who are eligible for free or reduced-price lunch in public schools.

Source. College Board (2014).

the College Board website lists 38 AP courses that schools can offer. In the 2014–2015 school year, the College Board added two algebra-based Physics classes to its list of course options, and in the 2016–2017 school year, a course on Computer Science Principles intends to introduce computer science to a broader range of high school students (College Board, n.d.-a). Since 1996, eight courses have been added to the AP catalog, accounting for more than 15% of AP exams administered (Judson & Hobson, 2015). However, while the expansion of participation in the AP program is clear, the precise nature of participation by race, ethnicity, and class remains muddled. In what follows, I attempt to clarify patterns in AP participation.

General Inequities by Class and Race

The College Board publicly available data suggest substantial enrollment gains for historically underrepresented students in AP over the past 10 years. On the second page of “The 10th AP Annual Report to the Nation,” the College Board (2014) notes a quadrupling of AP exam takers from low-income backgrounds between 2003 and 2013. The expansion for these low-income students in public schools has occurred at a rate of more than double that of expansion for the program as a whole (see Table 4). It is relevant to note, however, that low-income students are overrepresented in public schools, and any expansion in private schools serving higher income students is excluded from the analysis. Theokas and Saaris (2013) find that gaps remain significant by socioeconomic status, reporting that low-income students enroll in AP classes at less than a third of the rate of their middle- and high-income peers when they both attend schools offering AP. Employing a slightly different measure of socioeconomic status, Malkus (2016) uses National Center for Education Statistics data to report that students whose parents graduated from college are nearly twice as likely to participate in AP as students whose parents did not graduate from high school. The AP participation advantages of students whose parents graduated from college has decreased since 1994, when their participation rates were three times those of students whose parents did not graduate high school. Despite apparent gains in enrollment, socioeconomic gaps in AP participation remain substantial.

Additionally, the College Board reports dwindling gaps in AP exam participation along the lines of race and ethnicity. College Board numbers show a moderate

TABLE 5*AP exam participation, 2014*

Race/ethnicity	Percentage of HS graduates	Percentage of HS graduates who took at least one AP exam	Difference (underrepresentation)
African American	14.5	9.2	5.3
Latina/o	18.8	18.8	0

Note. AP = Advanced Placement; HS = high school.

Source. College Board (2014).

underrepresentation of African American students, who make up 9.2% of exam takers but 14.5% of the nationwide graduating class. Latina/o students, the College Board (2014) reports, are proportionally represented in AP, making up 18.8% of graduates and AP exam takers in the United States. These data are summarized in Table 5. However, Malkus (2016) reports that White and Asian AP students, on average, take more tests than African American and Latina/o AP students. His analysis of high school transcript data by the National Center for Education Statistics indicates that Asian AP students take an average of 4.1 AP credits, White AP students take 3.0 credits, Latina/o AP students take 2.5 credits, and African American AP students take 2.4 AP credits. I next evaluate how participation gaps vary by AP subject area.

Race Inequities by AP Subject Area

When the data are disaggregated by AP subject area, further inequity is illuminated. In 2014, the College Board released reports by subject area of AP exam participation by race and ethnicity. African American students are underrepresented in every AP subject. Latina/o students are underrepresented in all AP courses other than Spanish Language, Spanish Literature, and Italian Language and Culture (College Board, 2014). In Table 6, I present the percentage of AP exams taken by ethnicity for courses with at least 20,000 exam takers. The College Board's report demonstrating that Latina/o students are represented in AP courses in proportion to their graduation rates may be partly driven by their extensive participation in Spanish Language, where they make up 65.6% of AP exam takers (College Board, 2014). By estimating the total AP participation of Latina/o students using the College Board data presented in Table 6 (by calculating the Latina/o participation in each subject area other than Spanish Language, adding up their total participation numbers, and dividing by the sum of the total participation numbers for all students), their overall participation rate in these exams drops from 16.8% to 15.1%, below their 18.8% representation among high school graduates.

Enrollment inequities are particularly stark in AP STEM (science, technology, engineering, and mathematics) courses. For example, African American students make up only 2.5% and Latina/o students only 7.3% of AP exam takers in Physics C: Electricity and Magnetism and only 2.8% and 8.7%, respectively,

TABLE 6*Subject test^a participation by race/ethnicity, 2014*

Subject test	Total number of AP exams taken	Percentage of African American ^b	Percentage of Latina/o ^c
Biology	162,381	7.5	13.2
Calculus AB	223,444	5.9	13.8
Calculus BC	78,291	2.9	8.3
Chemistry	107,431	5.7	10.3
Computer Science	22,273	4.2	9.0
English Language	390,754	9.4	17.5
English Literature	325,108	9.8	16.7
Environmental Science	97,918	7.5	15.9
European History	87,753	5.0	13.2
Human Geography	71,010	12.0	16.4
Macroeconomics	87,315	6.5	17.7
Microeconomics	49,013	5.7	12.2
Physics B	68,802	4.9	13.5
Physics C: Mechanics	31,959	2.8	8.7
Psychology	199,222	7.8	13.1
Spanish Language	106,199	1.9	65.6
Statistics	141,335	6.4	11.4
U.S. Government	216,944	7.7	17.1
U.S. History	366,641	7.9	16.3
World History	175,065	10.0	18.1

Note. AP = Advanced Placement.^aParticipation rates reported for all tests with at least 20,000 participants.^bAfrican American students make up 14.5% of high school graduates.^cLatina/o students make up 18.8% of high school graduates.*Source.* College Board (2014).

of Calculus BC exam takers. African American and Latina/o STEM AP students come closest to proportional representation in Environmental Science AP (7.5% and 15.9%, respectively). Of particular concern has been unequal participation in Computer Science AP courses. Nationally, African American and Latina/o students make up only 13.2% of AP Computer Science test takers (College Board, 2014). In an ethnographic study of computer science coursework at three high schools in the Los Angeles Unified School District, Margolis et al. (2008) document how these inequities might arise. At the low-income school they study, no Computer Science AP course is offered, and in its place are courses on basic computer literacy. A school in a wealthy neighborhood, meanwhile, features a robust computer science curriculum, culminating in AP Computer Science. However, African American and Latina/o students at this school, frequently bused in from other neighborhoods, are largely absent from the advanced computer coursework. In a job market increasingly driven by science and

technology, access to STEM curriculum in high school can be foundational to ultimately earning a STEM degree and obtaining a career in the field (Bottia, Stearns, Mickelson, Moller, & Parker, 2015).

Currently, the College Board is resolute in expressing its desire to expand AP, particularly across lines of race, ethnicity, and class (College Board, 2014). Certainly, restricted access for marginalized students to AP mirrors their experiences with advanced coursework in middle school and early high school (Gamoran, 1992). While the AP program alone cannot account for skill and socioeconomic inequalities of high school students, school district and College Board policies can affect participation across racial, ethnic, and socioeconomic groups. In what follows, I focus on two dimensions of racial/ethnic and socioeconomic inequity in AP. First, I discuss the ways in which inequalities of AP manifest between schools serving predominantly low-income students of color and schools serving predominantly middle- and high-income populations. Next, I discuss within-school inequalities that exist at schools serving predominantly White or diverse populations. I offer a detailed summary of the between- and within-school components of AP participation inequalities and the challenges faced by policies to overcome them.

Inequalities of Advanced Placement Between Schools

Researchers have illuminated substantial inequality in AP course offerings between schools. Zarate and Pachon (2006) find that the number of African American and Latina/o students and the number of low-income students are both negatively correlated with AP course offerings. For example, they find that medium-sized schools in California (1,000–1,500 students) serving a less than 10% African American and Latina/o population offer more than 1.5 times as many AP courses as schools serving 75% to 100% African American and Latina/o students. Solórzano and Ornelas (2004) find that the 50 California schools with the most AP offerings served an average of 21% Latina/o and African American students, well under their 46% overall enrollment in California high schools. Neither of these studies on unequal AP course offerings between schools, however, controls for mean student achievement or school quality. Between-school AP inequality may thus extend from unequal school quality and achievement inequalities, and I address this possibility below.

A number of state-level policies of the past decade have sought to close gaps in AP access by increasing AP course offerings at schools with significant numbers of students from marginalized backgrounds. The Education Commission of the States (2016) reports that all but three states incentivize AP access with policies such as subsidizing AP testing fees, assessing AP participation as an accountability metric, funding teacher trainings, and others. Eight states require that schools or districts provide access specifically to AP, and 15 others require some form of advanced coursework, of which AP is an option. These policies suggest that state education leaders view rigorous coursework such as AP to be valuable for students of all socioeconomic and racial/ethnic backgrounds.

However, disparities in AP offerings between low-income and middle- and high-income schools persist in spite of AP-related state interventions. Jeong (2009) demonstrates through a study that utilized a two-level hierarchical linear

model that state-level policies incentivizing schools to offer AP are not associated with equalized AP enrollment by socioeconomic status. Studies specific to particular states have arrived at similar conclusions. Incentives in California, Florida, and Texas have led to increased AP course offerings at schools in low-income neighborhoods, but access has increased at an even greater rate in middle- and upper-class districts (Conger et al., 2009; Klopfenstein, 2004a; Klugman, 2013). Klugman (2013) argues, “To maintain their competitive edge, students from advantaged groups, such as high-SES families, will pursue an increasing number of distinctions, a dynamic that their schools facilitate” (p. 2), which, he explains, is an example of effectively maintained inequality (Lucas, 2001). While none of these studies investigate causality, the limited association between AP course disparities and policies intended to offset them suggests stubborn gaps in AP offerings between low- and high-income districts.

An additional challenge of equitable access is the recent trend among elite private schools—for whom the AP program was initially intended—to drop AP courses from their curriculum. Prestigious secondary schools have eschewed AP courses for locally designed courses emphasizing critical thinking and inquiry (Schneider, 2009). While elite schools might encourage students to take AP tests to earn college credit, they leave the AP designation off of their course titles and ignore the instructional recommendations of the AP program. For example, the course catalog of Phillips Exeter Academy (2016) takes the following position on the AP History courses:

The department does not confine itself to teaching in order to prepare students for standardized tests. We believe that such an approach would compromise our commitment to student-centered discussion, close reading of primary and secondary sources, and independent research and writing. Those students wishing to take AP exams in history are strongly advised to undertake sustained review on their own. (p. 27)

Elite private schools are uniquely positioned to drop their AP offerings, because, as David Oxtoby (2007) explains, “they are relying on their own cachet to convince colleges that advanced courses need not carry the AP label to signal rigor” (para. 6). Musoba and Baez (2009) suggest that this trend may imply a Bourdieusian pattern where as more schools adopt AP, the AP program loses prestige. Dominant groups alter the value of particular forms of cultural capital to maintain their dominance. If elite schools change the definition of elite courses, old marks of distinction give way to new ones.

Notwithstanding the trend among elite private schools to cut AP courses, low-income school districts are struggling to match the breadth of AP course offerings of middle- and upper-class districts. Importantly, marginalized students are often less well prepared to engage with AP rigor. As such, perhaps AP participation inequities are primarily due to established achievement disparities, and schools with fewer or more AP courses are simply meeting the needs of their student populations. Conger et al. (2009) argue that a school’s AP course offerings are most strongly associated with the number of their rising ninth-grade students with above-average math achievement, and a school’s financial resources appear to

have little impact on its capacity to offer AP courses. Iatarola et al. (2011) find that in Florida, low-income students are significantly less likely to enroll in AP, but controls for “pre-high school characteristics” such as GPA and test scores reduce the poverty gap by more than two thirds. Regarding race, after controlling for achievement, multiple studies have demonstrated that associations between advanced coursework enrollment and race disappear, or even reverse direction (Conger et al., 2009; Domina & Saldana, 2012). Additionally, Kelly (2009) finds that controlling for Black–White achievement and family background results in no significant correlation between race and math track placement across all schools. However, she notes that a significant relationship remains in schools that are predominantly White. Like the other studies, Kelly suggests that AP course differences between schools are largely tied to achievement disparities between the students each serves. However, the finding that African American students are at a disadvantage with respect to math track placement at predominantly White schools regardless of their prior achievement suggests within-school racial dynamics may affect AP participation. In what follows, I present a detailed analysis of within-school AP inequities.

Inequalities of Advanced Placement Within Schools

While urban and rural schools have struggled to match the AP course offerings of schools in middle- and upper-class districts, an alternative way to equalize AP enrollment is to expand participation of underrepresented students at predominantly White schools, wherein skill gaps may play a reduced role in course placement (Kelly, 2009). Predominantly White high schools have a long history of inequitable access to classroom rigor for their African American and Latina/o students. In 1985, Jeannie Oakes wrote *Keeping Track*, a book that brought to the fore issues of tracking in American secondary schools. Tracking, the process by which students are organized into classrooms by ability level, is often defended as a means to ensure the most efficient learning environments for all students. In the schools Oakes researches, she finds that in all but two, substantial gaps existed in AP coursework between White and non-White students. She argues that these findings are consistent with “virtually every study that has considered the distribution of poor and minority students among track levels in schools” (p. 67). Oakes argues that the policies and pedagogies associated with tracking legitimate and heighten the social inequalities students bring with them from home.

Unfortunately, racial and ethnic tracking inequalities in predominantly White schools have not disappeared in the years since *Keeping Track* was published. While segregation may be more pronounced between schools than within them, students continue to be sorted within schools along the lines of race, ethnicity, and poverty status (Clotfelter et al., 2002; Kalogrides & Loeb, 2013). A number of studies have highlighted how a school’s diversity can influence track placement. In North Carolina, one study indicates that African American students who attend a diverse school are less likely to enroll in the advanced track than African Americans who attend schools that are predominantly African American (Mickelson & Everett, 2008). Lucas and Berends (2007) use a national sample to also conclude that the likelihood of African American enrollment in the advanced track is negatively correlated with the number of White students on campus.

Tracking along the lines of race, ethnicity, and class at diverse high schools likely contributes to the general pattern of lower AP access for students from marginalized backgrounds.

How might the dynamics of course selection at predominantly White high schools influence inequitable AP access? Here, we turn to qualitative investigations of how race, ethnicity, and class play out in course selection at U.S. schools. Tyson (2011) argues that elementary school teachers and administrators frequently promote racialized notions of “giftedness” that influence African American students to lack confidence in their intelligence and to subsequently enroll in fewer AP courses in high school. Racial assumptions about intelligence and racialized tracking patterns become mutually reinforcing when African American students who may be capable of AP work shy away from predominantly White AP classes that make them uncomfortable. High school policies reinforce the trends toward inequitable course enrollment. Oakes and Guiton (1995) implicate high school enrollment practices in the formation of AP participation patterns along the lines of race, ethnicity, and class. Their case studies of three high schools demonstrate how school policies work directly against the interests of students from marginalized backgrounds, directing them away from more rigorous courses. Klopfenstein (2004b) suggests a variety of student and school-level factors that are associated with the diversity of a school’s AP program. While family income is the strongest predictor of AP participation, she also argues for the potential influence of cultural factors. For example, African American SAT takers are 30% more likely to enroll in an AP class taught by an African American teacher. The extreme shortage of teachers of color in the United States (Ahmad & Boser, 2014), however, may preclude the possibility of using teacher cultural background as an impetus toward more diverse AP enrollment. A variety of school and student characteristics are associated with AP enrollment disparities.

Other studies have highlighted how family–school interactions affect enrollment decisions for students at diverse or predominantly White high schools. Parents from nondominant cultural backgrounds—often less well-informed regarding the intricacies of advanced course work—face disadvantages when tasked with supporting their children’s course enrollment (Gándara, 1995; Lewis & Diamond, 2015, Noguera, 2003). In their book, *Despite the Best Intentions*, Amanda Lewis and John Diamond (2015) investigate a diverse, suburban high school and suggest how such disadvantages may arise in school–parent interactions. They interview teachers who admit to privileging White students because their parents tend to complain more often if they think a teacher is mistreating their child. This concern leads teachers to recommend more White than non-White students for advanced classes. Meanwhile, a parent of a student of color reports that when she advocated for her child to enroll in AP, school officials questioned her intelligence because she does not speak “the King’s English.” Enrollment practices can erect barriers for non-White parents who may want to support their children in accessing AP.

Predominantly White schools that attempt to improve equitable access to advanced classes often see their policy changes undermined by cultural processes. Wells and Serna (1996) illustrate that even when schools attempt to de-track, elite

parents are able to leverage their access to school and district administrators to maintain stratified tracking systems. They threaten to leave the district if schools attempt to integrate classrooms with students of color who, as one parent described, “are not American . . . their heart is in Mexico . . . and I’m calling it the American work ethic. They’re not into it” (p. 101). Even when schools succeed in eliminating prerequisites to advanced track courses and open enrollment to all, Yonezawa et al. (2002) show that African American and Latino students often lack the dominant cultural capital to take advantage of the high-track courses. They have incomplete access to information about the tracking structures at their schools and express discomfort in spaces they perceive to be dominated by White students. Access to elite cultural capital can shape how students and families engage with AP policies at their schools.

The persistence of gaps in AP enrollment highlights particular theoretical assumptions about social reproduction in educational settings. More students attending schools in low-income neighborhoods are engaging in the program, but students at schools in wealthier districts have expanded their programs as well. Racial and ethnic gaps in AP enrollment at predominantly White schools have remained entrenched. These processes suggest a tendency toward effectively maintained inequality. Effectively maintained inequality theorizes that as participation in particular levels of schooling approach a saturation point—in this case secondary education—dominant groups maintain inequality by ensuring exclusive access to distinctions within the saturated levels (Lucas, 2001). Additionally, these processes align with the Bourdieusian assumption that elites define what counts as valued cultural capital and restrict its availability to nondominant groups (Musoba & Baez, 2009). Prominent sociological theories of education might help inform the persistence of participation gaps in AP.

Regardless of stubborn participation gaps, the AP program has undeniably expanded beyond the elite circle from which it began. The efforts the College Board and others have made to provide equitable access are commendable. However, increased participation raises new questions. If more students are taking AP classes—many from groups historically absent from the program—will AP be able to effectively deliver on its promise to develop “college-level knowledge and skills” (College Board, 2014, p. 5)? In what follows, I address the research on whether the AP program has maintained effectiveness, particularly for groups who have been historically underrepresented in the program.

The Challenge of Effectiveness

A fundamental challenge of expanding AP is that many new AP students, particularly those from marginalized communities, will have endured inadequate academic preparation for the rigors of AP. For these students, AP course work will pose unique difficulties. Since the explicit objective of the College Board AP program is “developing college-level knowledge and skills” for students across all racial, ethnic, and socioeconomic backgrounds, whether the program effectively readies students for college is a core area of concern. In this section, I first outline existing literature on the declining association of AP with college outcomes and then present two areas where the literature suggests AP may be falling short: student test performance and AP pedagogy.

College Outcomes and Advanced Placement

The call to increase enrollment in AP courses rests heavily on the supposition that they actually prepare students for college coursework. There is much empirical support for this assumption. Adelman (1999, 2006) finds that “academic intensity,” measured by levels of math classes, number of English units taken, and number of AP courses, is the strongest school-level predictor of bachelor’s degree completion. In his analysis of high school students in the 1980s and early 1990s, Adelman finds that AP coursework is one element of a generally rigorous high school curriculum that sets students up for college success. Some more recent scholarship has found similar effects of AP on college outcomes (Scott et al., 2010; Speroni, 2011). A principal critique of many AP studies, however, is that AP course enrollment is merely a proxy for student ability and motivation and offers little unique contribution to college readiness. The college success attributed to AP course taking, according to some studies, may actually be because of the caliber of students who opt to take them. Ultimately, Klopfenstein and Thomas (2010) note, “It is difficult for researchers with the best data to account for unobservable characteristics, such as motivation and educational aspirations. Therefore, the causal implications of even the best studies remain dubious” (p. 171).

Despite the obstacles to studying the impact of AP course taking on college outcomes, many researchers have taken on the challenge. Most of these studies find minimal to no impacts of AP course taking and college readiness. For instance, Klopfenstein (2010) finds that the observed college-going benefits of AP course taking are largely the result of signaling effects of student ability and motivation as measured by the academic rigor of their non-AP courses. Perhaps the most cited study on the relationship between AP and college outcomes is that of Geiser and Santelices (2004), whose regression analysis finds negligible benefits of AP classes with respect to first- and second-year college GPA and college persistence. In adding AP course taking to their model of first-year GPA, they note that AP only accounts for an additional one one-hundredth of a percent of the variance. For second-year GPA, they find that the only AP/honors courses significantly associated with improved GPA are science and math courses, which are predicted to improve one’s GPA by 0.03 points (e.g., from a 3.01 to a 3.04).

AP Student Test Performance and College Readiness

Thus, over the past few decades, there appears to have been a decline in the association between AP participation and college outcomes. Dougherty et al. (2006) suggest that the findings of recent studies contradict the influential findings of Adelman (1999, 2006) and academic intensity because Adelman’s samples were taken before the significant increases in AP participation of the 1990s. In Adelman’s study, a small subset of high school students—presumably those most prepared for advanced coursework—was engaging with AP and honors classes.

College readiness is enhanced not merely by taking AP courses but by successfully learning the material. Some studies have thus sought and found correlations between taking AP *and passing the test* and college outcomes. Many studies have found passing AP tests to be a better predictor of college success than merely taking the class (Dougherty et al., 2006; Geiser & Santelices, 2004; Sadler & Sonnert,

TABLE 7*Percentage of exams passed by AP exam takers*

Student race/ethnicity	1997 AP pass rate	2012 AP pass rate
White	65.5%	64.7%
African American	35.9%	29.1%
Latina/o	61.1%	42.8%

Note. AP = Advanced Placement. Based on 908,772 exams in 1997 and 3,636,702 exams in 2012.

Source. Judson and Hobson (2015).

2010). Geiser and Santelices (2004), for example, find that adding AP test scores to their model predicting college outcomes increases the variance explained by 1.4%. Dougherty et al. (2006) disaggregate their findings by race and socioeconomic status. They show that while a correlation between AP participation and college outcomes exists after controlling for demographic variables, the association is much stronger across all demographic groups for students who pass the test. Research by the College Board reinforces the argument that college-related benefits of AP are only detected for students who pass AP tests (e.g., Mattern et al., 2009; Morgan & Klaric, 2007). While the correlations between AP test passing and college outcomes are generally small and may be driven by school-level variables unassociated with AP (Klopfenstein & Thomas, 2010), students who pass tests are consistently shown to be more prepared for college than those who do not.

Unfortunately, AP expansion has corresponded with substantial challenges on AP tests. William Lichten (2000, 2010) has found that the increase in number of students taking AP is associated with a decline in average AP test scores. He has documented entire high schools where no AP student earns a passing score on the exam (Lichten, 2010). Lichten suggests that many students are simply not ready to take on AP-level coursework. Similarly, Judson and Hobson (2015) find that AP expansion has corresponded with a precipitous decline in AP exam passage rates. The proportion of tests receiving a “1” (the lowest possible score) has doubled from 10% to 20% since 1992. And for Latina/o students, the group for whom expansion has occurred most rapidly, the passage rates for the test (a 3 or better) have declined from above 60% in 1997 to just above 40% in 2012 (see Table 7). Since AP exams did not undergo any major revisions over this time span, the score decline is concerning. The College Board (2014) notes that gaps in exam passage rates demand “our immediate attention,” reporting that African American, Latina/o, and low-income students are each significantly underrepresented in the U.S. population of students who have passed AP exams. Low-income students, who make up nearly half of the U.S. public school population, make up only 21.7% of students who pass AP tests (College Board, 2014). As such, Lichten (2000) argues that there have been “diminishing returns” for AP as the program has expanded to more students.

One recent study, however, employs other testing measures to find more optimistic results. Nat Malkus (2016) finds that even as more students have taken AP

courses, the National Assessment of Educational Progress (NAEP) math scores of AP students have remained steady. Malkus argues that his findings show that neither the average academic quality of the AP students nor the rigor of the AP classes has decreased since expansion. Why would NAEP scores remain steady among AP students if AP exam scores have experienced such dramatic declines? Malkus's suggestion that AP expansion simply incorporated more well-prepared students into the fold and maintained the quality of instruction does not explain the AP exam score decline. Another possible explanation is that high-ability students are attending low-quality AP courses. Since much of the expansion has been occurring for low-income students and Latina/o students, who often attend schools in low-income neighborhoods, perhaps new AP classes are attracting students who can perform well on NAEP, but who endure poor instruction that does not adequately prepare them for the AP test. Whether Malkus's findings are indeed supportive of AP expansion is deserving of further study.

Thus, there exists some evidence that advanced coursework was, at one point, foundational to college success, but as more students with varying levels of academic preparation have begun to engage in AP, those gains have become clouded. This process has aligned with a rather dramatic decline in AP test performance. One fairly consistent finding across a variety of studies has been that passing the AP exam is far more closely associated with improved college outcomes than merely taking the course. Many scholars interpret these findings to suggest that more underprepared students are engaging with AP and are unable to benefit from the instruction. In what follows, I address an additional possibility: The lack of an association between AP participation and college outcomes may be a function of inadequate college readiness pedagogy in AP.

AP Instruction and College Readiness

Surveys and interviews of AP students suggest that AP courses might be an improvement over their non-AP classes. Students taking AP report that AP classes are the most challenging at their schools and say that they offer a "relief from high school boredom" (Hertberg-Davis & Callahan, 2008). Additionally, students say they feel a stronger sense of community and a better atmosphere in AP classrooms (Foust et al., 2009). Students who enroll in AP courses express more positive views on the intellectual caliber of their high schools. Sadler et al. (2014) argue that advanced science and math courses (though not specifically AP) enhance student interest in pursuing careers in STEM. These benefits, however, do not come without a cost. A substantial number of AP students report workloads that are very challenging for them to manage (Foust et al., 2009). In these studies, sampling a variety of AP students of varying socioeconomic, racial, and ethnic backgrounds, students report that AP provides them uniquely positive learning opportunities.

Though they are popular, whether these learning opportunities are college preparatory is a separate question. Theories of college readiness emphasize critical thinking and problem solving—skills that are often hard to capture on standardized tests—as essential to college preparedness (Conley, 2003, 2007). A key area of robust pedagogical critique regarding AP involves concerns over "breadth versus depth." In problematizing the dichotomy between "breadth" and "depth,"

Wineburg (1997) emphasizes that “in-depth” knowledge is not the ability to recite a plethora of discrete facts, but is one’s capacity to “separate the peripheral from the central . . . see the forest for the trees, and possess knowledge organized in interconnecting networks of meaning and significance” (p. 257). Extensive research has demonstrated that pedagogical practices emphasizing critical thought and in-depth inquiry achieve more complex, long-lasting understandings than practices that promote rote memorization of facts (Barron & Darling-Hammond, 2008; Schwartz, Sadler, Sonnert, & Tai, 2009; Wiggins & McTighe, 2005). In 2002, the National Research Council recommended that the AP program better align itself with the academic literature on pedagogy by reducing the scope of its curricula and emphasizing skills such as inquiry, analysis, and problem solving. Recent analyses of AP suggest that the program’s “Achilles’ heel” continues to be its expansive coverage of subject-area content (Parker et al., 2011). Parker and colleagues (2011), however, argue that while most AP courses resort to lecture-heavy pedagogy to meet the vast curricular expectations of AP courses, engaging in a project-based approach that emphasizes depth of understanding can deepen learning and improve student performance on the AP test. Whether and how teachers employ such strategies is deserving of future inquiry.

In response to criticisms regarding breadth of coverage, the College Board has begun curricular revisions. Between 2012 and 2015, Biology, Latin, Spanish Literature and Culture, Chemistry, Spanish Language and Culture, and United States History have all undergone course revisions through collaborations with college professors, AP teachers, and curriculum specialists (College Board, n.d.-a). The College Board contends that the new changes will emphasize “inquiry, reasoning, and communication skills” and “strike a balance between breadth of content coverage and depth of understanding” (College Board, n.d.-a). No studies have examined how the curricular changes over the past 4 years have affected AP classrooms.

More specifically, AP pedagogies at schools serving low-income students are important to investigate, since much AP expansion appears to be occurring among these populations (College Board, 2014). Research in this area is scant, but developing. Through 48 interviews of students in a large urban district about their experiences in AP, Hallett and Venegas (2011) find that students, most of whom have not passed their AP exams, express frustrations regarding gaps between what the AP tests asked of them and what their teachers taught. Despite conducting detailed interviews, Hallett and Venegas did not visit any inner-city high school campuses to collect data. Among the extant literature, there are only a few studies that do so. Kyburg et al. (2007) study three urban schools serving primarily students of color and find that successful AP programs are guided by educators who believe all students can succeed and a flexible approach to scaffolding and support for diverse students. In her interviews of Latina/o first-year college students from an urban high school, Duncheon (2017) finds that the students struggle with college writing, in part, because the style of writing assignments in their AP classes did not align with the expectations of college.

Additionally, the literature offers a few isolated examples of teachers who incorporate culturally relevant practices to more effectively engage learners from nondominant cultural backgrounds. Baker-Bell (2013) employs “critical language”

pedagogies in an AP English class, working with the teacher to incorporate a learning segment on the nature and history of African American Language. The African American students complete the unit feeling engaged and validated in their classroom learning. Sheets (1995) shares her experience as a teacher who incorporates culturally relevant practices for the Latina/o students in her Spanish AP Language and Literature courses to create the conditions in which even students who were unable to pass her beginning Spanish class are able to excel. Classroom challenges of AP instruction for students from marginalized backgrounds suggest that theories of student culture and pedagogy (e.g., Ladson-Billings, 1995; Paris, 2012) may be quite relevant, yet these frameworks are underutilized in analyses of AP instruction.

In a rush to cover all the content that might be assessed on the end-of-year exams, AP teachers may neglect to develop among students the types of skills that are necessary for college readiness or to employ the types of culturally relevant approaches useful for students from marginalized backgrounds. Klopfenstein and Thomas (2009) argue that when considering AP, scholars and practitioners must differentiate between curricula that is “college preparatory” and “college level” (p. 887). AP pedagogy may seek to cover college-equivalent content at the expense of meaningfully developing college-ready skills. Future research on AP might investigate the ways in which AP pedagogy aligns with the development of college readiness among students from marginalized backgrounds.

Understanding the Challenges of Advanced Placement

The existing scholarship strongly suggests that the AP program is yet to achieve its dual goals of equitable access and effective college-level skill development. Although more students from groups traditionally underrepresented in AP are now taking at least one AP course, schools in wealthier neighborhoods have significantly increased AP opportunities for their students. Research on schools serving predominantly White communities suggests that students from marginalized backgrounds continue to be underrepresented in AP courses. Regardless, the increase in access to AP in the context of entrenched social and educational inequities is noteworthy. However, the case may be that more AP participation is not necessarily beneficial. Today, students appear less likely to experience enhanced college-going outcomes tied to their participation in AP. This trend may be tied to the fact that greater percentages of students, particularly those from marginalized populations, have failed AP exams. Alternatively, some scholars have questioned the pedagogical approaches of AP classes.

The research makes clear that, despite laudable gains in access, challenges of equity and effectiveness continue to vex AP programs. However, there exists no consensus regarding how these challenges might be interpreted. Why do difficulties of access and effectiveness persist in AP? Can they realistically be overcome? In what follows, I suggest three potential interpretations of the AP program’s challenges, each grounded in relevant educational theory. First, perhaps the apparent inability of the program to expand to underrepresented students and maintain effectiveness is simply indicative of the tendency of such students to be underprepared for rigorous courses. A second possible interpretation has less to do with student skill gaps and more to do with inadequate instruction in schools. Perhaps

AP curricula are being ineffectively taught to students from marginalized backgrounds. A third interpretation suggests that AP programs are a component of social reproduction that serves to reify existing social hierarchies. Each explanation can account for the persistent challenges of the AP program to effectively expand to serve a wider range of students, and each can point to evidence from existing literature to bolster its case. However, as I shall argue, existing literature leaves key questions largely unanswered, and a deeper understanding of AP begs new approaches to AP research.

Interpretation 1: Most Underrepresented AP Students Cannot Benefit From the Program

Perhaps the AP program has struggled to expand and maintain effectiveness simply because many of its students are not prepared for advanced coursework. Achievement gaps are widening between students from low- and high-income households (Reardon, 2011). If low-skilled students will inevitably struggle to succeed in AP—and many students from marginalized backgrounds have not yet developed the requisite academic skills necessary to succeed in advanced classes—policies to diversify the program may prove unhelpful. Indeed, as noted above, AP test passage rates for African American and Latina/o students have fallen well below 50%.

A number of scholars have made the case that robust AP course offerings may be inappropriate at schools serving predominantly low-income students. Klopfenstein and Thomas (2009) write, “At-risk high school students particularly benefit from skills-based instruction, including how to study, how to approach academic tasks, what criteria will be applied, and how to evaluate their own and others’ work” (p. 887). Thus, for such students, a course schedule with multiple AP courses may simply be less effective than courses that emphasize academic and study skills. Perhaps it is for this reason that Iatarola et al. (2011) find that principals’ determinations on course offerings are most closely associated with the average achievement of the incoming eighth-grade class. Lichten (2010), who studied AP expansion to low-income school in Philadelphia, argues that principals in inner-city schools are justified in their reluctance to adopt AP, arguing that “recent attempts to expand into nonexam urban high schools can best be characterized as a disaster” (p. 240).

At diverse schools, some argue that skill gaps between students justify academic tracking practices that limit access to AP to just the highest achieving students. Efforts to incorporate students from marginalized backgrounds might hinder the ability of AP teachers to hold high standards and guide their students through the rigorous demands of the AP curricula. Dougherty et al. (2006) argue that AP courses may have been “watered down” by their expansion to more students, and this may explain the program’s apparent declining association with college outcomes. Loveless (2009), a proponent of tracking in high school, has argued that allowing students of varying skill levels to enroll in the same classes may inhibit the learning of advanced students. A report from the Fordham Institute (Farkas & Duffett, 2009) surveying 1,024 AP teachers across the United States suggests that AP teachers are frustrated by “open door” policies to their AP courses. Sixty-three percent of respondents believe that more screening was

needed to ensure that students are ready for AP work before enrolling in the class. Well-meaning policies that seek to expand AP programs may have the unintended consequence of weakening the effectiveness of AP. This unfortunate reality may be the reason schools have resisted equal access to AP and why many students have struggled to reap the advertised benefits of AP participation.

These analyses suggest that the College Board is misguided in expanding AP expansion to marginalized populations before ensuring that those students acquire the skills necessary for AP success. By this logic, the underrepresentation of marginalized students is merely an unfortunate consequence of their underachievement. Indeed, such an interpretation aligns with the well-documented academic challenges associated with being raised in a low-income household (Coleman et al., 1966; Rothstein, 2009). While few scholars would likely suggest that students from marginalized backgrounds do not prepare for college, they would advocate that schools develop other means of doing so apart from AP. AP could thus return to its initial purpose of exclusively serving the most academically prepared students.

Interpretation 2: AP Curricula Are Being Ineffectively Taught to Underrepresented Students

Alternatively, perhaps underperformance in AP is the result of poorly delivered content, particularly to students from marginalized communities. The challenges of these students in AP might be related to the educational challenges associated with schools serving low-income students. In addition, the nature of AP curriculum may be poorly suited to students from historically marginalized backgrounds.

A substantial body of research documents the challenges of schools serving low-income students (Harper, 2015). Schools in low-income neighborhoods lack quality teachers (Eckert, 2013; Ronfeldt, Loeb, & Wyckoff, 2013), face elevated levels of school violence (Kitzmiller, 2013), and struggle with persistent underachievement (Levin, 2009; Zhou, 2003). The challenges of limited resources and stubbornly low achievement might likely carry over into the AP programs at these schools, but research in this area is limited. Klopfenstein (2003) argues that effective AP courses require significant financial resources and highly trained teachers. Effective instructors may be particularly necessary given the breadth of coverage expected of AP courses. From this standpoint, improving AP access and effectiveness for students from marginalized backgrounds might be contingent on more general efforts to improve urban and rural education.

Additionally, the curriculum of AP may be ineffective for youth from non-dominant cultures. There exists no shortage of theory from which to guide investigations of the AP classroom as a cultural experience for African American, Latina/o, and low socioeconomic status youth. Culturally relevant pedagogy (Ladson-Billings, 1995), critical pedagogy (Giroux, 1988; Kincheloe, 2008; McLaren, 2015), and culturally sustaining pedagogy (Paris, 2012) have each contributed substantially to theoretical understandings of teaching and learning for youth from marginalized cultural backgrounds. These pedagogical theories emphasize how curriculum must emphasize the sociocultural realities of marginalized students. However, such pedagogical practices may be strained by AP

content standards notorious for breadth of content coverage. Students who do not feel connected to the curriculum may be less likely to enroll in an optional AP course, and if they do enroll, they may find it harder to succeed.

Thus, this interpretation emphasizes the necessity of pedagogical improvements to enhance AP outcomes for marginalized youth. More training might be provided to inner-city and rural AP instructors. Pressing for the adoption of more culturally relevant practices and curricula in AP courses could engage more students in AP classes. While a few studies have addressed the cultural congruence of AP classrooms for students from marginalized backgrounds (Baker-Bell, 2013; Sheets, 1995), more research can uncover how AP practices and pedagogies might better serve underrepresented AP students.

Interpretation 3: AP Is a Component of Social Reproduction

Theories of social reproduction suggest a durable social hierarchy maintained by institutions such as schools. Samuel Bowles and Herbert Gintis argued in 1976 that capitalism defined the central purpose of schools: to prepare students for their place in the economic structure. Schools direct students from low-income households to low-paying jobs. For Bowles and Gintis, that students from marginalized backgrounds struggle to access and succeed in classes designed for the elite is indelibly linked to the reproductive nature of schooling. To the concept of social reproduction, Pierre Bourdieu (1973) added the notion of “cultural capital.” Bourdieu constructed “cultural capital” as elite cultural competence that comes only after the investment of money and effort. These abilities thus privilege youth from elite classes whose economic circumstances allow time and energy for their accrual. Schools, in turn, reproduce the social order by rewarding students for cultural competencies that they do not teach. These processes may form the basis for “effectively maintained inequality” (Lucas, 2001) wherein parents ensure qualitative distinctions for their students amid leveling educational terrain. Within these frameworks, AP’s failure to uplift marginalized student populations has little to do with students or their schools but is rather the result of efforts of dominant groups to structure institutions in ways that ensure the reproduction of the social order.

Some evidence suggests the intractability of AP inequities can be attributed to the reproduction efforts of institutions controlled by dominant groups. For example, as schools serving low-income students develop AP programs, schools serving middle- and high-income students expand their offerings even more (Klugman, 2013), and some elite schools shed their course offerings of AP altogether (Schneider, 2009). Detracking policies that attempt to bring students of different backgrounds into the same classes are met with resistance from parents whose children will benefit from a stratified system (Wells & Serna, 1996). Recently, when the College Board released U.S. History AP standards that emphasized the oppressive treatment of Native Americans during U.S. Expansion and Japanese Americans during World War II, opponents of the curriculum loudly castigated the new standards as “too negative” (Massey, 2015). The following year, the College Board redesigned the standards such that they were more amenable to the defenders of American society and less relatable for members of marginalized groups.

Social theorists Bowles, Gintis, and Bourdieu were famously pessimistic about the propensity for schooling to upend social hierarchy. As such an interpretation of the ineffectiveness of AP grounded in social reproduction theories emphasizes the futility of policy changes. Neither skill building for low-income students nor more equitable school policies in AP will alter the social structures that prevent social mobility for students from nondominant families.

An Incomplete Understanding of Advanced Placement

More research is needed to determine which, if any, of the aforementioned interpretations of the challenges of AP aligns most closely with reality. Are AP classes failing to equalize access and maintain effectiveness because of underprepared students, ineffective schools, or the inherent tendency of schools to reproduce social hierarchy? Here, I argue that existing research does not provide satisfactory answers. I argue first that grounding AP research in existing theoretical frameworks might more meaningfully connect patterns of AP to the broader discourse of educational inequality. Second, I argue that although the AP literature features an abundance of statistical analyses, few employ experimental methods or investigate causality. Third, the vast quantity of statistical analyses of AP might benefit from the addition of more localized investigations to the literature. More qualitative analyses could provide insight into how the challenges observed in the quantitative data unfold—or are overcome—at the local level.

While a few studies have built on theoretical foundations for analyses of AP (e.g., Domina & Saldana, 2012; Yonezawa et al., 2002), the majority of studies have been largely atheoretical. Absent theoretical grounding, much AP scholarship illuminates statistically robust patterns for which the causal mechanisms remain unclear. For example, we are well aware that students from marginalized backgrounds fail AP tests more often than their more advantaged peers; however, whether this is due to families, teachers, or social structures necessitates an investigation of theoretical constructs. Admittedly, much of the qualitative work on AP has drawn on theory to ground its analysis, but theoretically grounded qualitative research on AP is dwarfed by an abundance of methodologically driven quantitative inquiry. Extant education research has thoroughly investigated theories of social stratification, pedagogy, cultural capital, and effectively maintained inequality. In this review, I have suggested a few theories that hold analytical promise—namely, theories of poverty and education (Berliner, 2013), theories of critical and relevant pedagogy (Ladson-Billings, 1995), and theories of social stratification in education by capitalist reproduction (Bowles & Gintis, 1976), effectively maintained inequality (Lucas, 2001) and access to cultural capital (Bourdieu, 1973). Grounding AP investigations in these well-developed theoretical constructs can significantly supplement the existing literature on AP and nuance current understandings of educational processes.

Although largely atheoretical, quantitative analysis in the AP literature is robust. However, among all the studies reviewed here, only one (Parker et al., 2011) employs experimental or causal methods. Random control or quasi-experimental investigations of AP policies or curricula, regression discontinuity designs, or other methods that seek to uncover causal processes are largely absent from the literature on AP. As such, while the literature offers detailed accounting

of patterns in AP participation and performance, insights on how schools and districts might interrupt patterns of AP inequality are few. While admittedly more challenging to administer, causal investigations can allow for deeper understanding of the origins of equity and effectiveness in the AP program.

Also, studies investigating the socially constructed realities of AP courses for the people who experience them may provide new insights. A number of studies have suggested that AP programs at urban schools have faced challenges due to underprepared students. However, just one (Hallett & Venegas, 2011) actually spoke to students in those schools. Students may be able to articulate how their academic abilities and school resources affect their ability to succeed in AP classes. In particular, investigating students from underrepresented backgrounds who find success in AP programs might suggest whether their success can be replicated for other students in similar circumstances.

In addition to research on individual students, studies at the school level can enhance our understanding of the challenges of AP. Schools in low-income neighborhoods have been assailed for their unsuccessful AP programs and schools in middle- and high-income neighborhoods have been shown to marginalize students from nondominant cultural backgrounds. While the research on diverse schools is methodologically robust, including a variety of case study and ethnographic investigations, similar studies into low-income AP programs are largely absent from existing literature. More localized research into expanding AP programs in inner-city schools may address the extent to which these schools are responsible for some of the shortcomings of urban AP programs.

Additionally, comparative case studies could prove useful. Different local applications of AP might differentially affect students. For example, in AP data released by the California Department of Education (2016), one may not be surprised that Malibu High School significantly outperforms Inglewood High School both in terms of percentage of students enrolled in AP and percentage of AP exam takers who pass the tests, but significant differences in AP outcomes also exist between schools in the same neighborhoods serving very similar student populations. Different outcomes in these circumstances cannot be attributed solely to disparities in financial resources, academic preparation, and historical oppression. Practices and pedagogies endemic to AP programs at specific high school campuses may differentially affect the ability of students to engage meaningfully in the curriculum and excel on AP tests. Alternatively, perhaps successful AP programs at inner-city schools merely provide a façade of equal opportunity and social mobility, and actually reify the existing social structure. If so, perhaps AP will exist as yet another academic institution confined to inequitable terrain.

Much available evidence suggests that AP has not yet achieved its stated goals of equal access and effectiveness. Arguing that a policy has not succeeded, however, is distinct from arguing that it can never succeed. While it is possible that AP expansion is destined to fall short of equitable access, a number of questions surrounding this assumption remain unanswered. First, rich theories have been developed that attempt to explain unequal outcomes, but whether AP patterns align with those theories is inadequately understood. Second, the quantitative methods employed investigate associations but do little to identify underlying causality. Last, without more “on the ground” research of AP programs, the literature

overemphasizes general trends at the expense of localized understandings. Greater emphasis on theory, causal methods, and localized understandings could either suggest or deny the potential for a more equitable AP landscape.

Conclusion

This analysis has been developed on the grounds that the AP program factors heavily in decisions made on high school campuses. Administrators must choose which AP courses to adopt into course catalogs and how to assign teachers and students to particular classes. Teachers grapple with AP curricula, explore courses to teach, and permit which students to enroll. Students think strategically about how many AP courses will endear their transcripts to colleges and balance that number against the likelihood of academic overwhelm. The penetration of AP into U.S. high schools has accelerated rapidly over the past decades (Schneider, 2009), but it is unclear if the research has kept pace.

From a wide-angle view of AP, the scholarly literature has uncovered a great deal about the program. Admirably, access has been expanding, probably far more than the founders of the program could have imagined. More low-income students and students of color are engaging with the program, and the College Board deserves credit for the steps it has made toward greater equity in AP. However, gaps in AP enrollment by race, ethnicity, and socioeconomic status remain both between and within schools. Attempts to close gaps in AP participation are met with challenges from institutions serving privileged groups who make decisions that maintain inequities.

We also know that expansion of AP to serve more students from groups who have historically been excluded from the program has led to curricular challenges. Many students fail to pass the test. The failure rate presents troublesome realities for AP as a means for improved college readiness, especially if test passage is the only AP measure associated with college success. Indeed, AP appears to be loosely, if at all, associated with college grades and degree completion. How would a program so explicitly designed for college success struggle so substantially at improving college outcomes? Unfortunately, the shortage of theoretically grounded investigations, the underapplication of causal methods, and the dearth of inquiry into specific schools and classrooms limit the extent to which the mechanisms of AP challenges can be understood.

While AP has expanded access, smaller percentages of students have passed tests, and AP participation has become more weakly associated with college persistence. Does this mean that expansion and effectiveness are inherently incompatible? Unfortunately, the research presented here does not answer that question. AP scholarship is yet to uncover the particular nature of AP's failures and has neglected to highlight its successes. Whether failure is the result of student skill deficiencies, ineffective AP policies and pedagogies, or social forces beyond the reach of the College Board cannot be determined by the data. As such, few productive suggestions for how AP access and effectiveness can be improved have been offered. The scholarship is defined by a heavy emphasis on regression analyses and an apparent hesitancy of scholarly researchers to seek out the indigenous character of AP courses at urban schools. If a substantial portion of AP expansion is occurring in urban classrooms, and the entirety of the scholarship on AP offers

lenses into just one or two urban schools, what can we really know about the meanings of AP in the schools in most need of support?

Extant research is long on patterns and short on possibility. While enrollment rates, AP test scores, and college attainment variables can effectively tell us where we are, more innovative investigations can better help us understand how we got here and where we might go next. Large-scale data on AP forces program analyses into a “tug-of-war” metaphor. Either equity or excellence will emerge the victor. Pulling one side of the rope shortens the other. But perhaps the research on AP needs a new rope—or a new metaphor. Unless researchers can reframe the conversation on AP from one mired exclusively in statistical patterns toward one that is grounded in theory, investigates causal mechanisms, and includes the attitudes and idiosyncrasies of actual schools and classrooms, our understanding of a program so salient to the lives of high school youth will be inadequately understood.

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References

- *References denoted with an asterisk are empirical studies in the sections that address questions of equal access and effectiveness of Advanced Placement. They are also featured in Tables 1 and 2.
- Adams, C. J. (2014, December). Colleges vary on credit for AP, IB, and dual classes. *Education Week*. Retrieved from <https://www.edweek.org/ew/articles/2014/12/10/colleges-vary-on-credit-for-ap-ib.html>
- *Adelman, C. (1999). *Answers in the toolbox: Academic intensity, attendance patterns, and bachelor's degree attainment*. Washington, DC: U.S. Department of Education Office of Educational Research and Improvement.
- *Adelman, C. (2006). *The toolbox revisited: Paths to degree completion from high school through college*. Washington, DC: U.S. Department of Education.
- Ahmad, F. Z., & Boser, U. (2014). *America's leaky pipeline for teachers of color: Getting more teachers of color into the classroom*. Washington, DC: Center for American Progress.
- *Baker-Bell, A. (2013). “I never really knew the history behind African American language”: Critical language pedagogy in an Advanced Placement English language arts class. *Equity & Excellence in Education*, 46, 355–370.
- Barron, B., & Darling-Hammond, L. (2008). *Teaching for meaningful learning: A review of research on inquiry-based and cooperative learning*. San Rafael, CA: George Lucas Educational Foundation.
- Berliner, D. C. (2013). Effects of inequality and poverty vs. teachers and schooling on America's youth. *Teachers College Record*, 115(12), 1–25.

- Blackmer, A. R., Bragdon, H. W., Bundy, M., Harbison, E. H., Seymour, C., Jr., & Taylor, W. H. (1952). *General education in school and college: A committee report by members of the faculties of Andover, Exeter, Lawrenceville, Harvard, Princeton, and Yale*. Cambridge, MA: Harvard University Press.
- Bottia, M. C., Stearns, E., Mickelson, R. A., Moller, S., & Parker, A. D. (2015). The relationships among high school STEM learning experiences and students' intent to declare a STEM major in college. *Teachers College Record*, *117*(3), 1–46.
- Bourdieu, P. (1973). Cultural reproduction and social reproduction. In R. Brown (Ed.), *Knowledge, education, and cultural change: Papers in the sociology of education* (pp. 71–112). London, England: Tavistock.
- Bowles, S., & Gintis, H. (1976). *Schooling in capitalist America*. New York, NY: Basic Books.
- Bruner, J. S. (1983). *In search of mind: Essays in autobiography*. New York, NY: Harper & Row.
- Bryan, R. R., Glynn, S. M., & Kittleson, J. M. (2011). Motivation, achievement, and advanced placement intent of high school students learning science. *Science Education*, *95*, 1049–1065.
- California Department of Education (2016). Postsecondary preparation. Retrieved from <https://www.cde.ca.gov/ds/sp/ai/>
- *Clotfelter, C. T., Ladd, H. F., & Vigdor, J. L. (2002). Segregation and resegregation in North Carolina's public school classrooms. *North Carolina Law Review*, *81*, 1463–1512.
- Clotfelter, C. T., Ladd, H. F., & Vigdor, J. L. (2006). Teacher–student matching and the assessment of teacher effectiveness. *Journal of Human Resources*, *41*, 778–820.
- Coleman, J., Campbell, E., Hobson, C., McPartland, J., Mood, A., Weinfield, F., & Yonk, R. (1966). *Equality of educational opportunity*. Washington, DC: U.S. Department of Health, Education, and Welfare, Office of Education.
- College Board. (2003). *A brief history of the Advanced Placement program*. Retrieved from https://www.oakparkusd.org/cms/lib/CA01000794/Centricity/Domain/295/APUSH/AP_History_history.pdf
- *College Board. (2014, February 11). *The 10th AP annual report to the nation*. Retrieved from <http://media.collegeboard.com/digitalServices/pdf/ap/rtn/10th-annual/10th-annual-ap-report-to-the-nation-single-page.pdf>
- College Board. (2015). *Program summary report*. Retrieved from <https://secure-media.collegeboard.org/digitalServices/pdf/research/2015/Program-Summary-Report-2015.pdf>
- College Board. (2016a). AP program participation and performance data. Retrieved from <https://research.collegeboard.org/programs/ap/data/participation/ap-2016>
- College Board. (2016b). *AP rural fellows program*. Retrieved from http://apcentral.collegeboard.com/apc/public/professional_development/workshops/scholarships/index.html
- College Board. (n.d.-a). *Advances in AP*. Retrieved from <https://advancesinap.collegeboard.org/overview>
- College Board. (n.d.-b). *AP central*. Retrieved from <http://apcentral.collegeboard.com/home>
- *Conger, D., Long, M. C., & Iatarola, P. (2009). Explaining race, poverty, and gender disparities in advanced course-taking. *Journal of Policy Analysis and Management*, *28*, 555–576.

- Conley, D. T. (2003). *Understanding university success*. Eugene: University of Oregon, Center for Educational Policy Research.
- Conley, D. T. (2007). *Redefining college readiness*. Eugene, OR: Educational Policy Improvement Center.
- Darling-Hammond, L. (2000). New standards and old inequalities: School reform and the education of African American students. *The Journal of Negro Education*, 69(4), 263–287.
- *Domina, T., & Saldana, J. (2012). Does raising the bar level the playing field? Mathematics curricular intensification and inequality in American high schools, 1982–2004. *American Educational Research Journal*, 49, 685–708.
- *Dougherty, C., Mellor, L., & Jian, S. (2006). *The relationship between advanced placement and college graduation*. Austin, TX: National Center for Educational Achievement.
- *Duncheon, J. C. (2017). “You have to be able to adjust your own self”: Latinx students’ transitions into college from a low-performing urban high school. *Journal of Latinos and Education*. Advance online publication. doi:10.1080/15348431.2017.1355248
- Eckert, S. A. (2013). What do teaching qualifications mean in urban schools? A mixed-methods study of teacher preparation and qualification. *Journal of Teacher Education*, 64, 75–89.
- Education Commission of the States. (2016). *50-state comparison: Advanced Placement policies*. Retrieved from <http://www.ecs.org/advanced-placement-policies/>
- Farkas, F., & Duffett, A. (2009). *Growing pains in the Advanced Placement program: Do tough trade-offs lie ahead?* Retrieved from <https://edexcellence.net/publications/growing-pains-in-the-advanced.html>
- Foust, R. C., Hertberg-Davis, H., & Callahan, C. M. (2008). “Having it all” at sleep’s expense: The forced choice of participants in Advanced Placement courses and International Baccalaureate programs. *Roeper Review*, 30, 121–129.
- *Foust, R. C., Hertberg-Davis, H., & Callahan, C. M. (2009). Students’ perceptions of the non-academic advantages and disadvantages of participation in Advanced Placement courses and international baccalaureate programs. *Adolescence*, 44(174), 289–312.
- Gagnon, D., & Mattingly, M. (2015). *Limited access to AP courses for students in smaller and more isolated rural school districts* (Paper No. 235, National Issue Brief No. 80). Durham: University of New Hampshire, Carsey School of Public Policy. Retrieved from <https://scholars.unh.edu/carsey/235/>
- *Gamoran, A. (1992). Access to excellence: Assignment to honors English classes in the transition from middle to high school. *Educational Evaluation and Policy Analysis*, 14, 185–204.
- *Gándara, P. C. (1995). *Over the ivy walls: The educational mobility of low-income Chicanos*. New York: State University of New York Press.
- *Geiser, S., & Santelices, V. (2004). *The role of Advanced Placement and honors courses in college admissions* (Research and Occasional Paper Series CSHE.4.04). Retrieved from <https://cshe.berkeley.edu/sites/default/files/publications/rop.geiser.4.04.pdf>
- Gilbert, J. (1988). *A cycle of outrage: America’s reaction to the juvenile delinquent in the 1950s*. Oxford, England: Oxford University Press.
- Giroux, H. A. (1988). *Teachers as intellectuals: Toward a critical pedagogy of learning*. Westport, CT: Greenwood.

- *Hallett, R. E., & Venegas, K. M. (2011). Is increased access enough? Advanced Placement courses, quality, and success in low-income urban schools. *Journal for the Education of the Gifted, 34*, 468–487.
- Hampel, R. L. (1986). *The last little citadel: American high schools since 1940*. Boston, MA: Houghton Mifflin.
- Hargrove, L., Godin, D., & Dodd, B. (2008). *College outcomes comparisons by AP® and non-AP high school experiences* (Research Report No. 2008-3). Austin, TX: College Board.
- Harper, S. R. (2015). Success in these schools? Visual counternarratives of young men of color and urban high schools they attend. *Urban Education, 50*, 139–169.
- *Hertberg-Davis, H., & Callahan, C. M. (2008). A narrow escape: Gifted students' perceptions of Advanced Placement and International Baccalaureate programs. *Gifted Child Quarterly, 52*, 199–216.
- *Iatarola, P., Conger, D., & Long, M. C. (2011). Determinants of high schools' advanced course offerings. *Educational Evaluation and Policy Analysis, 33*, 340–359.
- *Jeong, D. W. (2009). Student participation and performance on Advanced Placement exams: Do state-sponsored incentives make a difference? *Educational Evaluation and Policy Analysis, 31*, 346–366.
- *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.
- *Kalogrides, D., & Loeb, S. (2013). Different teachers, different peers the magnitude of student sorting within schools. *Educational Researcher, 42*, 304–316.
- *Kelly, S. (2009). The Black–White gap in mathematics course taking. *Sociology of Education, 82*, 47–69.
- Kincheloe, J. L. (2008). *Critical pedagogy primer*. New York, NY: Peter Lang.
- Kitzmiller, E. M. (2013). “You can’t control me!” Cultivating authority in a struggling urban high school. *Teachers College Record, 115*(12), 1–43.
- Klopfenstein, K. (2003). Recommendations for maintaining the quality of advanced placement programs. *American Secondary Education, 32*, 39–48.
- *Klopfenstein, K. (2004a). The Advanced Placement expansion of the 1990s: How did traditionally underserved students fare? *Education Policy Analysis Archives, 12*(68). Retrieved from <https://epaa.asu.edu/ojs/article/view/223/349>
- *Klopfenstein, K. (2004b). Advanced Placement: Do minorities have equal opportunity? *Economics of Education Review, 23*, 115–131.
- *Klopfenstein, K. (2010). Does the Advanced Placement Program save taxpayers money? The effect of AP participation on time to college graduation. In P. M. Sadler, G. Sonnert, R. H. Tai, & K. Klopfenstein (Eds.), *AP: A critical examination of the Advanced Placement program* (pp. 189–218). Cambridge, MA: Harvard Education Press.
- *Klopfenstein, K., & Thomas, M. K. (2009). The link between advanced placement experience and early college success. *Southern Economic Journal, 75*, 873–891.
- Klopfenstein, K., & Thomas, M. K. (2010). Advanced placement participation: Evaluating the policies of states and colleges. In P. M. Sadler, G. Sonnert, R. H. Tai, & K. Klopfenstein (Eds.), *AP: A critical examination of the Advanced Placement program* (pp. 167–188). Cambridge, MA: Harvard Education Press.
- *Klugman, J. (2013). The Advanced Placement arms race and the reproduction of educational inequality. *Teachers College Record, 115*(5), 1–34.

- *Kyburg, R. M., Hertberg-Davis, H., & Callahan, C. M. (2007). Advanced Placement and International Baccalaureate programs: Optimal learning environments for talented minorities? *Journal of Advanced Academics*, 18, 172–215.
- Lacy, T. (2010). Examining AP: Access, rigor, and revenue in the history of the Advanced Placement program. In P. M. Sadler, G. Sonnert, R. H. Tai, & K. Klopfenstein (Eds.), *AP: A critical examination of the Advanced Placement program* (pp. 17–48). Cambridge, MA: Harvard Education Press.
- Ladson-Billings, G. (1995). Toward a theory of culturally relevant pedagogy. *American Educational Research Journal*, 32, 465–491.
- Levin, B. (2009). Enduring issues in urban education. *Journal of Comparative Policy Analysis*, 11, 181–195.
- *Lewis, A. E., & Diamond, J. B. (2015). *Despite the best intentions: How racial inequality thrives in good schools*. Oxford, England: Oxford University Press.
- *Lichten, W. (2000). Whither Advanced Placement? *Education Policy Analysis Archives*, 8(29). Retrieved from <https://epaa.asu.edu/ojs/article/view/420/543>
- *Lichten, W. (2010). Whither advanced placement—now? In P. M. Sadler, G. Sonnert, R. H. Tai, & K. Klopfenstein (Eds.), *AP: A critical examination of the Advanced Placement program* (pp. 233–244). Cambridge, MA: Harvard Education Press.
- Loveless, T. (2009). *Tracking and detracking: High achievers in Massachusetts middle schools*. Washington, DC: Thomas B. Fordham Institute.
- *Lucas, S. (2001). Effectively maintained inequality: Education transitions, track mobility, and social background effects. *American Journal of Sociology*, 106, 1642–1690.
- *Lucas, S. R., & Berends, M. (2007). Race and track location in US public schools. *Research in Social Stratification and Mobility*, 25, 169–187.
- Lumina Foundation. (2012). *Lumina's goal*. Retrieved from https://www.luminafoundation.org/goal_2025
- *Malkus, N. (2016). *AP at scale: Public school students in Advance Placement, 1990–2013*. Washington, DC: American Enterprise Institute. Retrieved from http://www.aei.org/publication/ap-at-scale-public-school-students-in-advanced-placement-1990-2013/?utm_source=twitter&utm_medium=social&utm_campaign=malkus&utm_content=paper
- *Margolis, J., Estrella, R., Goode, J., Holme, J. J., & Nao, K. (2008). *Stuck in the shallow end: Education, race, and computing*. Cambridge: MIT Press.
- Massey, W. (2015, July 31). *New U.S. history teaching framework released after controversy*. Retrieved from <http://www.cnn.com/2015/07/31/living/ap-history-united-states-curriculum-change/>
- *Mattern, K. D., Shaw, E. J., & Xiong, X. (2009). *The relationship between AP Exam performance and college outcomes* (College Board Research Report No. 2009-4). New York, NY: College Board.
- McLaren, P. (2015). *Life in schools: An introduction to critical pedagogy in the foundations of education*. New York, NY: Routledge.
- *Mickelson, R. A., & Everett, B. J. (2008). Neotracking in North Carolina: How high school courses of study reproduce race and class-based stratification. *Teachers College Record*, 110, 535–570.
- *Morgan, R., & Klaric, J. (2007). *AP students in college: An analysis of five-year academic careers*. New York, NY: College Board.
- Morgan, R., & Maneckshana, B. (2000). *AP students in college: An investigation of their course-taking patterns and college majors*. Princeton, NJ: Educational Testing Service.

- Musoba, G., & Baez, B. (2009). The cultural capital of cultural and social capital: An economy of translations. In J. C. Smart (Ed.), *Higher education: Handbook of theory and research* (Vol. 24, pp. 151–182). Dordrecht, Netherlands: Springer.
- National Center for Education Statistics. (2013). *High school transcript studies*. Retrieved from <https://nces.ed.gov/surveys/hst/>
- National Research Council. (2002). *Learning and understanding: Improving advanced study of mathematics and science in U.S. high schools*. Washington, DC: National Academies Press.
- *Noguera, P. (2003). *City schools and the American dream: Reclaiming the promise of public education* (Vol. 17). New York, NY: Teachers College Press.
- *Oakes, J. (1985). *Keeping track*. New Haven, CT: Yale University Press.
- *Oakes, J., & Guiton, G. (1995). Matchmaking: The dynamics of high school tracking decisions. *American Educational Research Journal*, 32, 3–33.
- Oxtoby, D. W. (2007, 27 April). The rush to take more AP courses hurts students, high schools, and colleges. *The Chronicle of Higher Education*. Retrieved from <https://www-chronicle-com.libproxy2.usc.edu/article/The-Rush-to-Take-More-AP/16298>
- Packer, T. (2012, December 3). Op-Ed: AP classes are one of America’s “great frauds.” *National Public Radio*. Retrieved from <http://www.npr.org/2012/12/03/166414595/op-ed-ap-classes-are-a-scam>
- Paris, D. (2012). Culturally sustaining pedagogy a needed change in stance, terminology, and practice. *Educational Researcher*, 41(3), 93–97.
- *Parker, W., Mosborg, S., Bransford, J., Vye, N., Wilkerson, J., & Abbott, R. (2011). Rethinking advanced high school coursework: Tackling the depth/breadth tension in the AP U.S. government and politics course. *Journal of Curriculum Studies*, 43, 533–559.
- Phillips Exeter Academy. (2016). *Courses of instruction*. Retrieved from <http://www.exeter.edu/documents/COI/COI2016-17.pdf>
- Reardon, S. F. (2011). The widening academic achievement gap between the rich and the poor: New evidence and possible explanations. In R. Murnane & G. Duncan (Eds.), *Whither opportunity? Rising inequality and the uncertain life chances of low-income children* (pp. 91–116). New York, NY: Russell Sage Foundation.
- Ronfeldt, M., Loeb, S., & Wyckoff, J. (2013). How teacher turnover harms student achievement. *American Educational Research Journal*, 50, 4–36.
- Rothschild, E. (1999). Four decades of the Advanced Placement program. *The History Teacher*, 32, 175–206.
- Rothstein, R. (2009). Class and the classroom. In K. Ryan & J. M. Cooper (Eds.), *Kaleidoscope: Contemporary and classic readings in education* (12th ed., pp. 283–289). Belmont, CA: Wadsworth.
- *Sadler, P. M., & Sonnert, G. (2010). High school Advanced Placement and success in college coursework in the sciences. In P. M. Sadler, G. Sonnert, R. H. Tai, & K. Klopfenstein (Eds.), *AP: A critical examination of the Advanced Placement program* (pp. 119–137). Cambridge, MA: Harvard Education Press.
- *Sadler, P. M., Sonnert, G., Hazari, Z., & Tai, R. (2014). The role of advanced high school coursework in increasing STEM career interest. *Science Educator*, 23(1), 1–13.
- Schneider, J. (2009). Privilege, equity, and the Advanced Placement program: Tug of war. *Journal of Curriculum Studies*, 41, 813–831.
- Schneider, J. (2011). *Excellence for all: How a new breed of reformers is transforming America’s public schools*. Nashville, TN: Vanderbilt University Press.

- Schwartz, M. S., Sadler, P. M., Sonnert, G., & Tai, R. H. (2009). Depth versus breadth: How content coverage in high school science courses relates to later success in college science coursework. *Science Education*, 93, 798–826.
- *Scott, T. P., Tolson, H., & Lee, Y. H. (2010). Assessment of Advanced Placement participation and university academic success in the first semester: Controlling for selected high school academic abilities. *Journal of College Admission*, 208, 26–30.
- *Sheets, R. H. (1995). From remedial to gifted: Effects of culturally centered pedagogy. *Theory Into Practice*, 34, 186–193.
- *Solórzano, D. G., & Ornelas, A. (2004). A critical race analysis of Latina/o and African American Advanced Placement enrollment in public high schools. *High School Journal*, 87(3), 15–26.
- *Speroni, C. (2011). *Determinants of students' success: The role of Advanced Placement and dual enrollment programs* (NCPR Working Paper). New York, NY: National Center for Postsecondary Research.
- *Theokas, C., & Saaris, R. (2013). *Finding America's missing AP and IB students*. Retrieved from https://1k9gl1yevnfp2lpq1dhrqe17-wpengine.netdna-ssl.com/wp-content/uploads/2013/10/Missing_Students.pdf
- *Tyson, K. (2011). *Integration interrupted: Tracking, Black students, and acting White after Brown*. Oxford, England: Oxford University Press.
- U.S. Census Bureau. (2015). *School enrollment*. Retrieved from <https://www.census.gov/topics/education/school-enrollment.html>
- Valentine, J. A. (1987). *The College Board and the school curriculum: A history of the College Board's influence on the substance and standards of American education, 1900–1980*. New York, NY: College Entrance Examination Board.
- *Wells, A. S., & Serna, I. (1996). The politics of culture: Understanding local political resistance to detracking in racially mixed schools. *Harvard Educational Review*, 66(1), 93–119.
- Wiggins, G. P., & McTighe, J. (2005). *Understanding by design*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Wineburg, S. (1997). Beyond “breadth and depth”: Subject matter knowledge and assessment. *Theory Into Practice*, 36, 255–261.
- *Yonezawa, S., Wells, A. S., & Serna, I. (2002). Choosing tracks: “Freedom of choice” in detracking schools. *American Educational Research Journal*, 39, 37–67.
- *Zarate, M. E., & Pachon, H. P. (2006). *Gaining or losing ground? Equity in offering Advanced Placement courses in California high schools 1997–2003*. Los Angeles, CA: Tomás Rivera Policy Institute.
- Zhou, M. (2003). Urban education: Challenges in educating culturally diverse children. *Teachers College Record*, 105, 208–225.

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