



Partnership for Educational Equity Research

Why EPSOs Matter: Preliminary Analysis of EPSO Completion and Student Outcomes in MNPS High Schools

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Findings in this brief are part of research undertaken by the **PEER Postsecondary Readiness Working Group**. Members include Sarah Chin, Sean Corcoran, Shaun Dougherty, Kevin Edwards, Meri Kock, Emily Munn, Matt Nelson, Kwami Nti, Mary Smith, Richard Welsh, and David Williams.

Introduction

This brief highlights the positive relationship between completion of Early Postsecondary Opportunities (EPSOs) and subsequent student outcomes, including students' performance on the ACT and college enrollment. We focus on six types of EPSOs routinely offered in MNPS public high schools: Cambridge International, Advanced Placement (AP), International Baccalaureate (IB), Statewide Dual Credit, Local Dual Credit, and Dual Enrollment. Our analysis finds that:

- 1) On average, students in the classes of 2018-2020 who completed at least one EPSO credit were more likely to score a 21 or higher on the ACT.
- 2) Students in the classes of 2018-2020 who completed at least one EPSO credit were more likely to enroll in college, a finding driven by enrollment in 4-year colleges.
- 3) The relationship between EPSO credit completion and college enrollment held true for students with varying levels of prior academic achievement.

Ensuring access to meaningful postsecondary education and training is a national focus and challenge, and one that Tennessee and Metro Nashville Public Schools have also prioritized. For example, Tennessee's Every Student Succeeds Act (ESSA) plan includes a school and district accountability measure called **Ready Graduate** for tracking college and career readiness. Students are considered Ready Graduates if they meet certain benchmarks such as scoring a 21 or higher on the ACT or completing a certain number of EPSOs. EPSOs are courses, or course sequences, intended to help students bridge secondary to postsecondary education by exposing students to college-level coursework and building foundational career skills.

In light of these findings, college and career readiness for all students and identifying, understanding, and eliminating inequalities in EPSO access and completion are among the district's highest priorities. MNPS is taking significant steps to ensure equitable access to EPSOs across its zoned high schools, including removing barriers to enrollment, ensuring a diverse array of course offerings, and ensuring EPSOs are connected to clear pathways that lead to postsecondary success.

About Nashville PEER

Nashville PEER (Partnership for Educational Equity Research) is a research-practice partnership between MNPS and Peabody College at Vanderbilt University. PEER brings researchers and educators together as partners to understand and disrupt educational inequities so that every student thrives.

PEER Working Groups seek to answer research questions that are part of a broader agenda to understand and address inequities in Nashville schools. This is the first in a series of research briefs produced by the PEER Postsecondary Readiness Working Group.

What the Research Says

Research on EPSOs in other contexts has found positive impacts of participation in these courses on students' academic performance and educational attainment. For example, students who earn credit for AP, IB, and Dual Enrollment courses have higher rates of college enrollment and college completion, and higher college GPAs.ⁱ In other work, findings show that EPSO participation boosts students' confidence in their academic abilities and college-going aspirations.ⁱⁱ

To date, we know little about how EPSO participation affects subsequent student outcomes in Tennessee or MNPS in particular. This brief highlights the results of a preliminary analysis by the PEER Postsecondary Readiness Working Group of data linking student-level EPSO participation to later outcomes for three cohorts of high school students in MNPS.

Methods

Our analysis uses MNPS high school student data from the graduating classes of 2018-2020 (i.e., students who entered 9th grade in 2014-2016). These students attended 26 MNPS schools that include traditional high schools, specialty schools, and magnet schools. For the purposes of this brief, we exclude data from charter schools and only include students who were not missing data on any key variables of interest. We link administrative data on students' prior academic achievement, race/ethnicity, disability status, English language learner status, economic disadvantage, and EPSO completion to subsequent outcomes including ACT test performance and postsecondary enrollment.

EPSO completion is defined as having completed one or more courses—and, if applicable, having received a valid score on the corresponding exam—within a given EPSO type in accordance with state accountability guidelines for the Ready Graduate indicator. The EPSO types we examine include Cambridge International, Advanced Placement (AP), International Baccalaureate (IB), Statewide Dual Credit, Local Dual Credit, and Dual Enrollment. Postsecondary enrollment is defined as enrollment for at least one semester at a postsecondary institution at any point between graduating high school and 2022, as tracked by the National Student Clearinghouse (NSC). While the NSC captures enrollment at most postsecondary institutions across the country—including 2- and 4-year colleges in Tennessee—it does not capture enrollment in the Tennessee College of Applied Technology (TCAT) system.

We use a statistical technique called regression analysis to summarize the relationship between EPSO completion and later student outcomes. This approach allows us to compare the average outcomes for students who did and did not complete EPSO courses while accounting for their own background characteristics (such as prior achievement levels), the school they attend, and the characteristics of their specific 9th-grade cohort. The aim is to compare outcomes for similar students attending the same high school who did and did not complete EPSO courses. In our analysis, students' prior achievement is measured by students' 8th-grade TVAAS ACT projected percentile score. Our models include controls for student disability status, economic disadvantage, status as an English language learner, race/ethnicity, eighth-grade TVAAS projections to the ACT, cohort, and school.

Key Findings

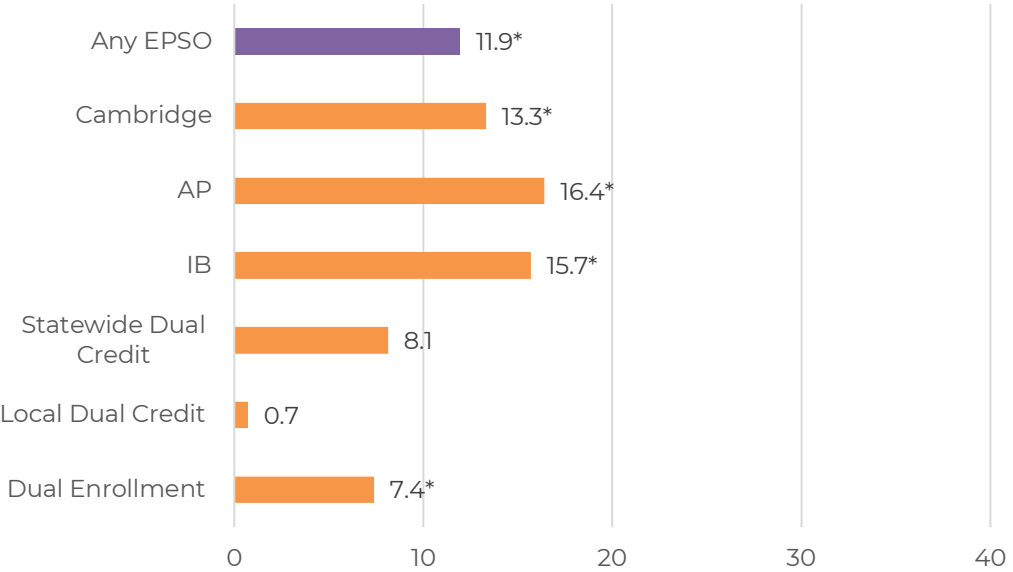
KEY FINDING 1:

On average, students in the classes of 2018-2020 who completed at least one EPSO credit were more likely to score a 21 or higher on the ACT.

Our analysis reveals a positive relationship between ACT performance and EPSO credit completion for MNPS students. As shown in Figure 1, on average, students in the graduating classes of 2018-2020 who completed any type of EPSO credit were about 12 percentage points more likely to score a 21 or higher on the ACT than those who did not complete an EPSO credit. Additionally, when broken down by specific EPSO type, students who completed an AP, IB, Cambridge, or Dual Enrollment course were more likely to SCORE a 21 or higher on their ACTs, while Local Dual Credit and Statewide Dual Credit completion did not produce statistically significant differences in student ACT scores.

Figure 1: Students who completed any EPSO credit were more likely to score a 21 or higher on the ACT than those who did not

Estimated difference in the percentage of students scoring 21+ on the ACT



Values reflect the estimated difference in the percent of students who scored a 21 or higher on the ACT between those who did and did not complete an EPSO credit.

For example, students who completed any type of EPSO credit were 12 percentage points more likely to score 21+ on the ACT than similar students attending the same high school who did not complete an EPSO credit.

Students who completed more than one EPSO type will be included in more than one estimated difference. We advise against making direct comparisons across EPSO types, as all comparisons are within-school, and EPSO type offerings vary by school across the district.

* Indicates statistical significance. If there is no significant relationship, the difference in ACT scores between students who completed an EPSO credit and those who did not is potentially due to chance rather than participation in an EPSO.

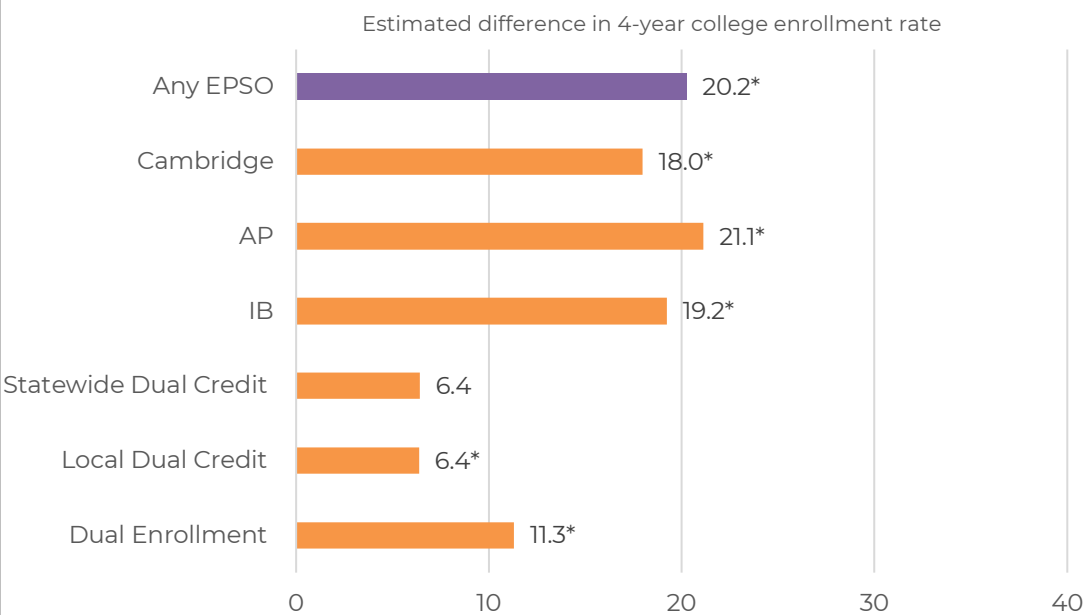
KEY FINDING 2:

Students in the classes of 2018-2020 who completed at least one EPSO credit were more likely to enroll in college, a result driven by enrollment in 4-year colleges.

Our analysis shows positive associations between EPSO credit completion and postsecondary enrollment for MNPS students. As shown in Figure 2, on average, students within the classes of 2018-2020 who completed any type of EPSO credit were about 20 percentage points more likely to enroll in a four-year college than those who did not complete an EPSO credit.

We also looked at associations between EPSO completion and enrollment in a two-year college (results not shown). For most EPSO types, this relationship was not statistically significant. The only exceptions were a small, negative relationship with two-year college enrollment for students who completed a Cambridge International course (who were 7 percentage points less likely to enroll) or a Statewide Dual Credit course (who were 4 percentage points more likely to enroll).

Figure 2: Students who completed an EPSO credit were more likely to enroll in a four-year college than those who did not



Estimates reflect percentage point differences in the college-going rate between students who did and did not complete an EPSO credit.

For example, students who completed any type of EPSO credit were 20 percentage points more likely than similar students attending the same high school to enroll in a four-year college than those who did not complete an EPSO credit.

Students who completed more than one EPSO type will be included in more than one estimated difference. We advise against making direct comparisons across EPSO types, as all comparisons are within-school, and EPSO type offerings vary by school across the district.

* Indicates statistical significance. If there is no significant relationship, the difference in four-year college matriculation between students who completed an EPSO credit and those who did not is potentially due to chance rather than participation in an EPSO.

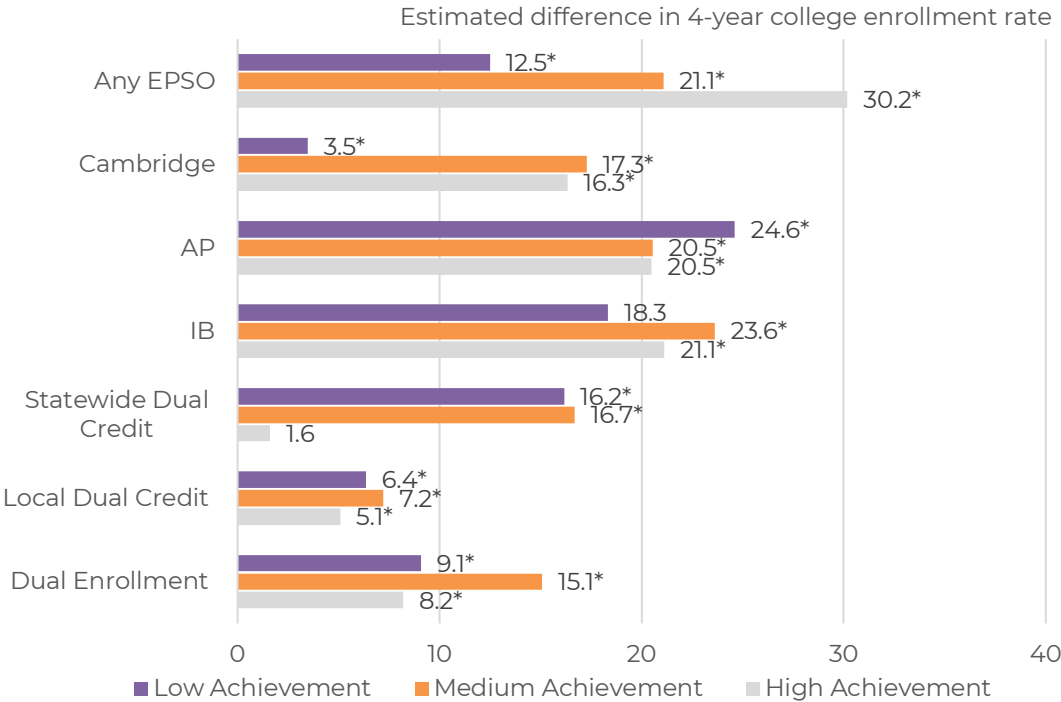
KEY FINDING 3:

The positive relationship between EPSO credit completion and college enrollment held true for students with varying levels of prior academic achievement.

The analyses in the prior sections compared students with similar levels of prior academic achievement as measured by their 8th grade TVAAS predicted ACT percentile. We also looked at whether these relationships held when looking separately at three groups of students: those with low, middle, and high achievement in 8th grade. For example, when looking across levels of prior student achievement, the positive association between EPSO completion and college-going remains.

Across all EPSO types and levels of pre-high school student achievement, students who completed an EPSO credit were more likely to enroll in a four-year college than those who did not. Figure 3 depicts these differences. For example, it shows that students who completed a credit in AP, IB, or Local Dual Credit were more likely to enroll in four-year college regardless of their prior level of academic achievement. Students with the lowest prior achievement scores were nearly 25 percentage points more likely to enroll in a four-year college if they had completed an AP credit compared to students who had not. The difference for students who completed an AP credit with the highest levels of prior achievement scores was nearly the same, about 20 percentage points.

Figure 3: Across different levels of prior academic achievement, students who completed an EPSO credit were more likely to enroll in a four-year college than those who did not.



Estimates reflect percentage point differences in the college-going rate between students who did and did not complete an EPSO credit.

For example, low-achieving students who completed any type of EPSO were about 12 percentage points more likely to enroll in a four-year college than those who did not complete an EPSO credit.

Students who completed more than one EPSO type will be included in more than one estimated difference. We advise against making direct comparisons across EPSO types, as all comparisons are within-school, and EPSO type offerings vary by school across the district.

Achievement groups correspond to the top third, middle third, and bottom third of students in each cohort based on students' eighth-grade TVAAS projections to the ACT.

* Indicates statistical significance. If there is no significant relationship, the difference in four-year college

matriculation between students who completed an EPSO credit and those who did not is due to chance rather than the effect of participating in an EPSO.

Summary

What We Know

This brief highlights the positive relationship between completion of Early Postsecondary Opportunities (EPSOs) and subsequent student outcomes, including students' performance on the ACT and college enrollment. Specifically, students who complete at least one EPSO credit are more likely to score higher on their ACTs and enroll in a four-year college. Notably, these results remain true for students spanning all levels of academic achievement, meaning that even those who historically have not performed as well academically still benefit from having access to and participating in EPSO coursework.

What Our Findings Don't Explain

Importantly, these findings cannot tell us whether one EPSO pathway is “better” than another. Our analysis compares outcomes for similar students within the same high school, and not all high schools offer every EPSO pathway. This makes head-to-head comparisons challenging. Additionally, our analysis cannot account for differences in individual postsecondary interest and aspirations, which also differ across schools and EPSO pathways. As such, this research cannot tell us what factors contribute to a student ever attempting an EPSO or what drives the positive relationship between EPSO completion and college-going.

These preliminary findings do not definitively show that higher rates of EPSO credit completion *cause* higher ACT scores and college enrollment. It may be that students who complete these courses have different, unobserved characteristics, resources, or aspirations that set them apart from students who do not complete these courses. While we are unable to fully account for these differences, our analysis goes further than prior work in MNPS by comparing students in the same high schools with similar prior achievement and other characteristics. Future work will go further to disentangle the true causal effects of EPSOs from these other factors.

From Research to Practice: MNPS Actions to Expand EPSO Access

At MNPS, all district work is focused around five focused outcomes: literacy, numeracy, attendance, social emotional learning, and transitions. “Transitions” refers to the district’s commitment to ensuring that all students can transition seamlessly into their desired postsecondary goal. In our strategic plan, MNPS is committed not just to ensuring our students are on track to graduate, but to succeed in their postsecondary goals. Specifically, MNPS leverages the [AVID College and Career Readiness Framework](#) to create a cohesive and effective college and career readiness strategy that benefits all students and fosters trust, belief, and success in their educational journey.

Recognizing the transformative impact EPSOs can have on students' educational and career outcomes, MNPS has taken several steps in recent years to bolster student enrollment in EPSOs, including removing enrollment barriers to EPSO courses, expanding EPSO course offerings, building capacity within schools to better promote EPSOs and support students. Through our ongoing work with PEER, the district is doubling down on our commitment to provide all students with equitable access to EPSOs to empower them on their paths to postsecondary success.

Below, we outline the actions MNPS has taken to date to expand student access to EPSOs (prior to our work with PEER), discuss next steps we're taking as a district in response to the most recent research coming out of our work with PEER, and preview what research is forthcoming in this area.

Background: MNPS Actions to Expand EPSO Access

Removing EPSO Enrollment Barriers

- MNPS now covers all examination and course costs associated with EPSOs, including AP tests, IB tests, and dual enrollment and dual credit course fees.
- Where possible, MNPS removed EPSO course and GPA requirements, limiting possible barriers to entry for some students.
- EPSO offerings at each school are published on the school's website, and families receive written notices with an EPSO point of contact at each school. The MNPS Student-Parent Handbook also contains information for families about EPSOs.

Diversifying EPSO Course Opportunities

- In the 2020-21 school year, MNPS began aligning credentials with CTE courses to ensure that students had a consistent experience at all zoned high schools, and to ensure that, where possible, every CTE course had an aligned EPSO course. This included expanding OSHA 10 credentials in most CTE pathways, Microsoft Office specialist credentials in business, finance, and marketing pathways, and AutoCAD, Adobe, Microsoft, and ServSafe credentials, which allowed MNPS students to both earn a credential and dual credit.
- MNPS expanded dual enrollment programming run in partnership with Nashville State Community College. As part of this program, MNPS launched an Early College model at Whites Creek High School, allowing Whites Creek students to access dual enrollment coursework and potentially graduate with an associate's degree, all without leaving their high school campus during the day. MNPS further expanded this partnership to include Glenclyff High School, which will launch its own Early College program in Fall 2024.

- MNPS has worked to ensure that all schools are able to offer EPSOs, regardless of existing enrollment and staffing. In many cases, this means offering digital and hybrid coursework, such as through the [AP Access for All Initiative](#).

Developing School-Based Staff to Promote EPSO Enrollment and Support Students

- Starting in spring 2023, a dedicated team deployed by the MNPS Support Hub focused on college and career readiness now reviews each high school's master schedule, working collaboratively with school staff to identify opportunities to increase EPSO enrollment. This is conducted before students complete their course enrollment, ensuring that the necessary oversight, development, and coaching is in place at all high schools so students can maximize their enrollment in EPSOs.
- Through three grants, the Innovative School Models, [New Skills Ready](#), and [GEAR UP](#) MNPS hired school-based staff to support college and career ready supports for students. These staff receive specific district support and training to ensure their work helps students to complete the activities necessary to prepare them for college enrollment and attainment, including enrollment in EPSOs. By helping students understand how EPSOs promote college enrollment and attainment, leveraging data, and providing tailored supports, MNPS aims to nurture a college-ready culture.

Research Response: Next Steps for MNPS

Metro Nashville Public Schools would like to express its deep appreciation for its partnership with Vanderbilt and the research produced with PEER. This working group has so far reinforced the positive impact of Early Postsecondary Opportunities (EPSOs) on Nashville's own students' academic and career trajectories.

As part of our work, MNPS has sought to understand the historical context for how EPSOs have impacted student outcomes to inform refinement of our ongoing practices for expanding access to EPSOs. These findings bring credibility to existing reports and the importance of MNPS's college and career readiness efforts. This research underscores the significance of ensuring that all students have access to EPSOs, regardless of their prior academic achievements. However, despite the district's work to eliminate systemic barriers to EPSOs access, there are still students not enrolling in EPSOs.

In response to these findings, MNPS will undertake the following actions.

- Increase and improve communication on importance of and access to EPSOs for families and students, principals, counselors, and educators.
- Understand which systems intended to support student access to EPSOs are working as designed (or not) from the perspective of users operating the systems.
- Create a culture for EPSOs access by eliminating leveled course language, challenging and testing expectations and accountability of EPSOs for all, and strategically increasing access through advising, transitions, and sustainably decreasing between-school variation.

Next Steps for Research

MNPS is eager to engage in future research that assesses which of these interventions and strategies are most effective in promoting enrollment in EPSOs. We believe that understanding the impact of our efforts is critical in ensuring that every student benefits from these opportunities. As we look ahead, we

invite collaboration with researchers, partners, and stakeholders to create supportive and equitable educational environment that prepares our students for college and career.

In light of the findings highlighted in this brief, college and career readiness for all students and identifying, understanding, and eliminating inequalities in EPSO access and completion are among the district's highest priorities. PEER's Postsecondary Readiness Working Group will next examine differential student access to EPSOs within and across MNPS high schools to further our work in ensuring all students have the necessary resources and supports to participate and succeed in these courses. In addition, an initial cohort of teams at three high schools are participating in co-design as a process to build and test solutions to address inequalities based on learning from the broader PEER research.

End Notes

ⁱ Cecilia Speroni, "Determinants of Students' Success: The Role of Advanced Placement and Dual Enrollment Programs. An NCPDR Working Paper," *National Center for Postsecondary Research*, 2011; C. Kirabo Jackson, "A Little Now for a Lot Later: A Look at a Texas Advanced Placement Incentive Program," *Journal of Human Resources* 45, no. 3 (July 1, 2010): 591–639, <https://doi.org/10.3368/jhr.45.3.591>; C. Kirabo Jackson, "Do College-Preparatory Programs Improve Long-Term Outcomes?," *Economic Inquiry* 52, no. 1 (2014): 72–99; Mark C. Long, Dylan Conger, and Patrice Iatarola, "Effects of High School Course-Taking on Secondary and Postsecondary Success," *American Educational Research Journal* 49, no. 2 (2012): 285–322; Brian P. An, "The Impact of Dual Enrollment on College Degree Attainment: Do Low-SES Students Benefit?," *Educational Evaluation and Policy Analysis* 35, no. 1 (2013): 57–75; Brent J. Evans, "How College Students Use Advanced Placement Credit," *American Educational Research Journal* 56, no. 3 (2019): 925–54; Brian P. An and Jason L. Taylor, "A Review of Empirical Studies on Dual Enrollment: Assessing Educational Outcomes," in *Higher Education: Handbook of Theory and Research: Volume 34*, ed. Michael B. Paulsen and Laura W. Perna, Higher Education: Handbook of Theory and Research (Cham: Springer International Publishing, 2019), 99–151, https://doi.org/10.1007/978-3-030-03457-3_3; Vanessa Coca et al., "Working to My Potential: The Postsecondary Experiences of CPS Students in the International Baccalaureate Diploma Programme.," *Consortium on Chicago School Research*, 2012; Kalena E. Cortes, Wael S. Moussa, and Jeffrey M. Weinstein, "Educating Bright Students in Urban Schools," *Economics of Education Review* 37 (2013): 286–97.

ⁱⁱ Dylan Conger, Mark C. Long, and Jr. McGhee Raymond, "Advanced Placement and Initial College Enrollment: Evidence from an Experiment," *Education Finance and Policy* 18, no. 1 (January 1, 2023): 52–73, https://doi.org/10.1162/edfp_a_00358.