Research

Resolved: Debate Programs Boost Literacy and College Enrollment

How debaters become better students

In a stereotypical image of a high-school debate tournament, straight-A students compete to see which renowned prep school team comes out on top. Increasingly, this is no longer the case: in recent decades, nonprofit organizations have been working to expand access to debate in public school systems that serve large concentrations of low-income students and students of color. More than 10,000 students from 20 cities participated in debate tournaments last year, according to the National Association for Urban Debate Leagues.

That includes the Boston Debate League, which was founded in 2005 to "develop critical thinkers ready for college, career, and engagement with the world around them." The league supports teachers to launch and coach debate teams and runs monthly after-school debates for middle- and high-school students, among other initiatives (see in-depth reporting on the league in "Making the Case for Student Debate Leagues," *features*, p. 32). While the immediate virtues of debate are easy to spot—teenagers research real-world topics, practice public speaking, and

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Shahed Ananzeh and Gustavo Dos Santos, students at the Boston International Newcomers Academy, work together to prepare for an upcoming speech during a Boston Debate League tournament at Suffolk University Law School in February. Ananzeh and Dos Santos are among the novice level of policy debaters.

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use evidence in support of their arguments—we wanted to know whether that translates into better academic achievement and attainment. Does participation in formal debate programs improve student outcomes?

First, we look at individual debaters' reading and math test scores over time and compare students to themselves in years when they do and do not participate in debate. When students are on a debate team, their reading scores improve by 13 percent of a standard deviation, or about two-thirds of a typical year of learning. We find the biggest gains are for students with the lowest elementary-school test scores and reflect improvements in literacy skills related to critical thinking and reading comprehension. The impacts on math scores are minimal.

We also examine how debate affects high-school graduation and postsecondary enrollment by comparing debaters to similar peers who attended schools that did not offer debate. We find positive impacts on graduation and postsecondary enrollment, mainly driven by increased enrollment in four-year colleges. Debaters are 17 percent more likely to graduate high school within five years and 29 percent more likely to enroll in a postsecondary institution.

While many reading interventions target younger students, our results reveal a high-impact strategy to boost literacy skills and post-secondary outcomes for teenagers—particularly those whose low test scores and socioeconomic status typically pose high barriers to college success. Our results provide policymakers with a rare promising strategy for reducing inequality in reading achievement, analytical thinking skills, and educational attainment during students' high-school years.

Potential Benefits of Policy Debate

Policy debate is an interscholastic, competitive, extracurricular activity for which teams of students engage in structured argumentation about public policy issues. Participants focus on a single topic for an entire academic year, such as arms sales, criminal-justice reform, or immigration policy, and work in two-person teams to research and develop policy proposals and arguments that support them. In tournaments, teams take on affirmative or negative positions, present their proposals, and cross-examine one another in a fast-moving sequence lasting 75 to 90 minutes. Policy debate students rely on their knowledge, effective use of evidence, ability to speak persuasively, and dexterity in thinking on their feet.

Why might we expect all of this to pay off academically? First, successful debaters construct and deliver compelling arguments that are well supported by both reasoning and evidence. In addition, the research aspect of policy debate includes reading and interpreting advanced nonfiction texts and social science research, while competitive debating includes quickly reading, analyzing, and refuting unfamiliar texts that opponents submit as evidence. Debaters are trained to consider both the content and relative credibility and objectivity of source materials. These skills are assessed on state reading tests and support advanced coursework in high school, including writing papers and participating in class discussions.

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Debate also may provide a mechanism for motivating academic engagement. Rather than passively listening to an adult deliver a lecture, debaters are at the front of the room, creatively engaging with content they have mastered. The topics are directly related to high-interest current events and invite students to pair academic work with questioning authority, by recommending what policymakers should and should not do. And because timed tournament play moves quickly, is designed to engage the audience, and involves competition with other schools, debate teams and leagues can energize a school population as a whole, much like interscholastic sports. These events call on an array of softer skills, such as time management, independent organization, and teamwork. Competition also exposes students to a college-going culture, as tournaments are often held on college campuses and judged by current or former college-level debaters.

Assessing Impacts in Boston

Our study focuses on the Boston Debate League, which supports 40 school-based teams in public middle and high schools in Boston, Chelsea, and Somerville, Massachusetts. We look at 10 years of individual students' league participation data, from the 2007–08 to 2016–17 school years, and match that with demographic and academic-achievement data from the Boston Public Schools. We also use data from the National Student Clearinghouse, which shows students' high school graduation status, postsecondary

enrollment status, and whether they enrolled in a two-year, four-year, public, or private institution.

Our sample includes 3,515 students who ever participated in a debate team. These students attended schools that serve disproportionate shares of low-income families and where students' average elementary-school reading and math scores are more than one-quarter of a standard deviation lower than schools not in the league. Some 82 percent of students at debate schools qualify for free or reduced-price school lunch and 36 percent are English language learners compared to 68 percent and 26 percent of students, respectively, at non-debate schools. The group of debaters we study is 42 percent Black, 39 percent Hispanic, 9 percent white, and 8 percent Asian. The typical debater began in the 9th grade, and a large majority only participated for a single academic year. Twenty-eight percent participated in middle school.

Debaters are a self-selected group—the team is a voluntary, after-school activity, and tournaments are held offsite on evenings and weekends. We examine baseline characteristics of debaters and students at debate schools who never join a team and find notable differences. Debaters have higher elementary-school reading scores, better attendance rates, and are less likely to receive special-education services than their classmates who choose not to join the team. They also are more likely to be female, Black, and economically disadvantaged.

Because of these non-trivial contrasts and the opt-in nature of the teams, it is likely that debaters and their non-debating classmates differ from one another in ways unrelated to debate. Therefore, for part of our analysis, we look to another group of students to serve as a comparison group: students attending schools that were not in the league and therefore could not choose whether to join a team. These students are more similar to debaters in terms of baseline test scores and are likely non-debaters because the program was not available to them.

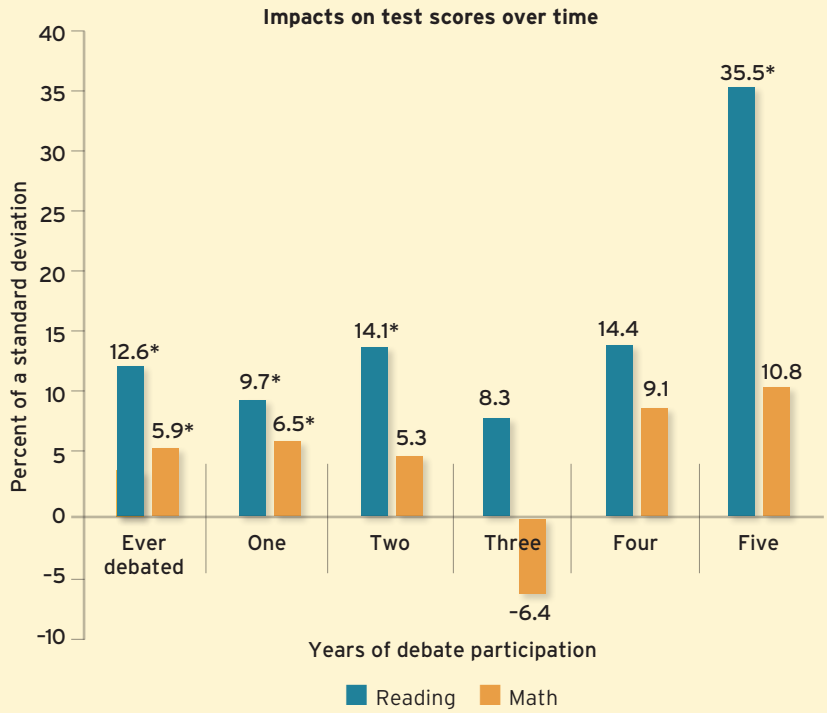
Effects on Academic Performance

First, to assess the impact of debate on academics, we compare debaters to themselves over time. Our analysis looks at individual students' test scores, attendance, and suspension records to test whether performance is different in years when students did and did not participate in debate.

Debaters earn higher scores on reading tests in the years when they participate in debate, and those benefits increase the longer students spend on the debate team (see Figure 1). Among all students who ever debated in school—who spend an average of 1.4 years on the

Debate Participation Boosts Reading Achievement *(Figure 1)*

Students who join a debate team earn higher scores on statewide reading tests in the years when they participate than in the years when they don't. Reading scores for students who ever debate in school, with an average tenure of 1.4 years, increase by 12.6 percent of a standard deviation. Reading scores for the small group of students who participate for five years grow by 35.5 percent of a standard deviation.



NOTE: Effects of debate participation on reading scores, adjusted for student fixed-effects. * is statistically significant at the 5 percent level. Estimate for Ever Debated includes 3,515 students; Year One is 1,766; Year Two is 513; Year Three is 65; Year Four is 26; Year Five is 14.

SOURCE: Authors' calculations based on Massachusetts Comprehensive Assessment System (MCAS) in 2008-17 and Partnership for Assessment of Readiness for College and Careers in 2016 and 2017.

team—reading scores increase by 13 percent of a standard deviation in the years they participate. Scores for students who spend just one year on the team increase by 10 percent of a standard deviation compared to 14 percent for students who spend four years on the team. Among the very small group of students who start in middle school and debate for five years, reading scores are 36 percent of a standard deviation higher.

In math, we do not find strong evidence that debate has a positive impact, although we see no evidence of harm. However, the math results do provide another insight: the much smaller math impacts relative to reading gives us confidence that our reading impact estimates are not simply an artifact of selection.

We also investigate which literacy skill gains drive the increase in debaters' reading scores by looking at which test items exhibit the biggest differences in student performance. We compare performance on "language" items, which test grammar, vocabulary, and punctuation knowledge, with performance on "reading" tasks, which focus on comprehension and analysis, such as identifying the main idea of a passage or supporting evidence for a claim. The positive impacts for debaters are nearly twice as large in more sophisticated reading tasks, at 10 percent of a standard deviation, than in language, at 6 percent of a standard deviation.

Interestingly, although debaters are generally higher performing than students in the same schools who never join debate, our analysis shows that the largest gains from debate are among students who had the lowest reading scores at the start of 6th grade (see Figure 2). When they participate on a debate team, students who were in the bottom quartile in elementary-school reading experience gains of 24 percent of a standard deviation compared to 10 percent of a standard deviation for students with the best elementary-school performance.

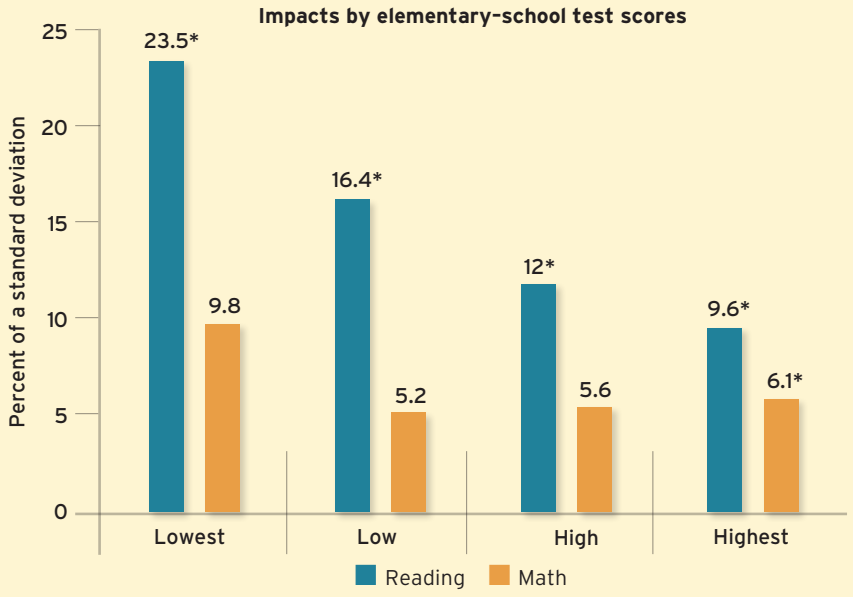
Finally, we also assess the impacts of debate participation on student attendance and behavior, as measured by how many days students are suspended from school. Overall, students have slightly better attendance in years they participate in debate, with an increase of 1.7 percent in days present. The impact on suspensions is minimal. However, in looking at the small group of students who start in middle school and spend five years on a debate team, we find the number of days present grows by 4 percent and the number of days suspended falls by about one-fifth.

Most likely, these comparisons produce conservative estimates of the impacts of debate, because every student in our sample has participated at least once. Even after a student leaves a debate team, they may carry those experiences and learning gains with them for some unknown length of time. Therefore, our comparison between participating and non-participating years may understate the true impact of debate participation on academic achievement, since our non-participant group includes

Bigger Benefits for Struggling Students

(Figure 2)

Students who are furthest behind grade level at the end of elementary school experience the biggest gains from participating in debate. Reading performance for the lowest-scoring students grows by 23.5 percent of a standard deviation compared to 9.6 percent of a standard deviation for students who were in the top quartile in elementary-school reading.



NOTE: Student quartiles based on elementary-school test scores, a baseline measure of performance. * is statistically significant at the 5 percent level.

SOURCE: Authors' calculations based on Massachusetts Comprehensive Assessment System (MCAS) in 2008-17 and Partnership for Assessment of Readiness for College and Careers in 2016 and 2017.

The Boston Debate League was founded in 2005 to "develop critical thinkers ready for college, career, and engagement with the world around them."

students who have already benefitted from debate.

On the other hand, these estimates may camouflage other factors contributing to the impacts of debate, such as students choosing a high school in order to join the debate team. Therefore, we also analyze our data by excluding students who debate for multiple years and by excluding students who started debate in grade 9. We do not see meaningful changes to our results, indicating that our preferred estimates capture the impact of debate participation itself.

Effects on Graduation and College Enrollment

To study the impacts of policy debate on students' postsecondary outcomes, we use a different comparison group: demographically similar students at schools that do not offer debate. We find that debate has substantial effects on both high-school graduation and college enrollment (see Figure 3). Some 80 percent of debaters graduate high school in five years compared to 68 percent of non-debaters, an increase of 17 percent. In addition, 53 percent of debaters enroll in a postsecondary institution within two years of their expected high-school graduation date compared to 41 percent of non-debaters, an increase of 29 percent. As with the impacts on academic outcomes, we find large differences when comparing debaters by their baseline reading performance at the start of middle school. Debaters with low elementary-school reading scores experience the greatest gains in post-secondary outcomes: they are 25 percent more likely to graduate high school in five years and 55 percent more likely to enroll in a postsecondary institution, based on gains of 16.4 and 20.5 percentage points, respectively.

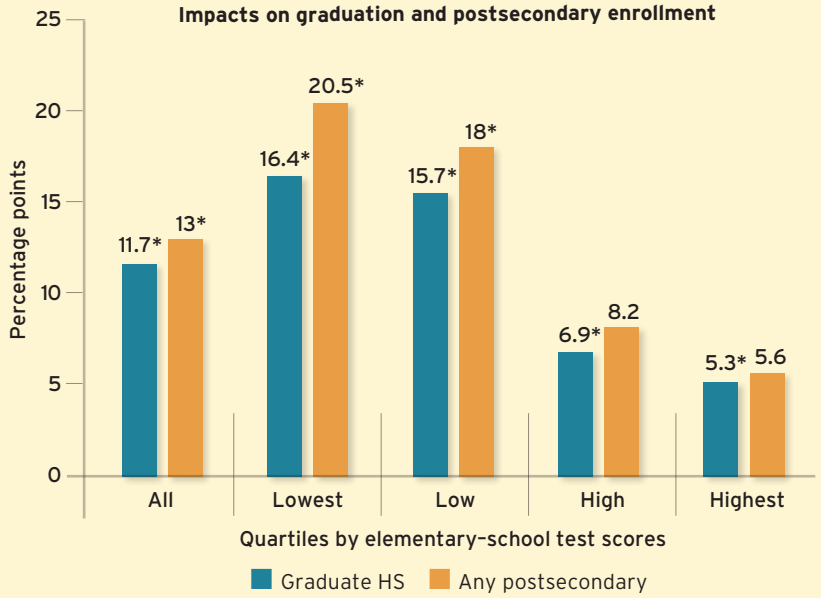
We also find big increases in the share of students enrolling in four-year institutions after graduating high school, with the largest gains for students with the lowest elementary-school reading scores (see Figure 4). Overall, debaters are 38 percent more likely to enroll in a four-year school and 28 percent more likely to enroll in a two-year school, based on gains of 12 and 4 percentage points, respectively. Students in the lowest quartile are 16 percentage points more likely to enroll in a four-year college after graduation compared to 9 percentage points for students with the highest baselines scores.

Policy Implications for Policy Debate

Most reading interventions are focused on the early elementary years, and 3rd-grade reading proficiency is viewed as a bellwether for success in adulthood. But

Debaters Are More Likely to Graduate High School and Enroll in College *(Figure 3)*

Compared to similar students at schools without debate teams, debaters are 11.7 percentage points more likely to graduate high school in five years and 13 percentage points more likely to enroll in a postsecondary institution. The biggest gains are for students with the lowest elementary-school test scores, who are 16.4 percentage points more likely to graduate compared to 5.3 percentage points for students in the top quartile in elementary school.



NOTE: See Figure 2.

SOURCE: Authors' calculations

what about the nine years of school that follow? We find substantial positive impacts for teenage students, the majority of whom are low-income students of color, when they participate in a competitive high-school policy debate team. Debaters make outsized progress in mastering sophisticated literacy skills and are more likely to graduate high school and enroll in college—and the biggest gains are among the students who are the farthest behind at the end of 5th grade. It's never too late to accelerate student progress.

The average improvement in debaters' reading scores is comparable to two-thirds of a year of learning and about 20 percent of the gap in 8th-grade reading between students who do and do not qualify for subsidized school lunch. Prior research has uncovered few interventions that generate literacy impacts of this magnitude for secondary school students.

Debaters are trained to consider both the content and relative credibility and objectivity of source materials. These skills are assessed on state reading tests and support advanced coursework in high school, including writing papers and participating in class discussions.

Further, the positive impacts on reading scores from participating in debate are twice as large for students with the lowest baseline levels of proficiency than for students with average scores, and we find a similar pattern of results for postsecondary outcomes. Debate programs therefore have the potential to reduce educational inequality by accelerating improvement most dramatically for the students who struggle most.

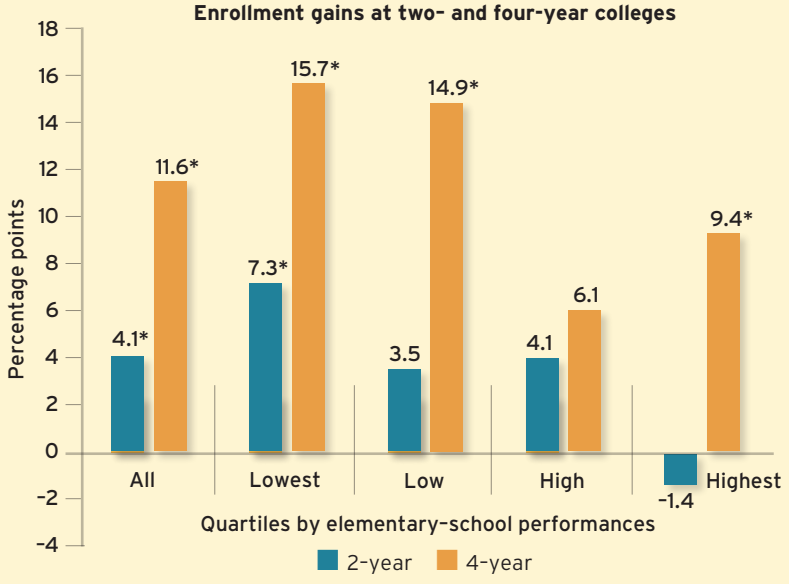
These programs also are inexpensive relative to other interventions. For example, the current per-pupil cost of the Boston Debate League is about $1,360, compared to about $2,800 for high-dosage tutoring, such as the well-regarded Match Education program. Prior research has found that students' reading performance improves by 15 percent to 25 percent of a standard deviation after tutoring. Therefore, policy debate programs appear to generate up to double the impact on reading test scores per dollar compared to state-of-the-art high-dosage tutoring.

Our study is not without limitations. Only a small subset of Boston students, all of them volunteers, participate in debate, and we can't speak to what would happen if students were required to join. We also can't fully rule out the possibility that some or all of the estimated effects on postsecondary outcomes are driven by selection bias, particularly because the postsecondary impact estimates are quite large.

However, our finding that the gains in

Greater Gains in Enrollment at Four-Year Schools *(Figure 4)*

After participating in a debate team, students are 11.6 percentage points more likely to enroll in a four-year college compared to 4.1 percentage points more likely to enroll in a two-year school. The biggest shift is for students with the lowest reading scores in elementary school, who are 15.7 percentage points more likely to enroll in a four-year institution after joining a debate team.



NOTE: See Figure 2.

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Trophies are ready for distribution at the awards ceremony for the Boston Debate League's qualifying championship tournament. Apart from the hardware, student debaters are found to gain substantial benefits in reading achievement, graduation, and college enrollment.

reading scores are concentrated on analytical thinking competencies rather than foundational language rules and conventions strengthens our confidence that our results reflect the impact of debate participation, not some other unobserved factor. This finding also suggests that policy debate develops students' critical thinking skills, another goal for which evidence-based strategies are in short supply. Future research should probe this finding further with better measures of critical thinking, argumentation skills, and other competencies needed for academic and civic participation, such as social perspective taking, media literacy, the ability to distinguish fact from opinion, and engagement with the policy process.

Beyond highlighting the value of formal debate programs, we believe these findings also have implications for classroom instruction. A handful of organizations, including the Boston Debate League, have developed and implemented professional development programs to help teachers infuse debate pedagogy into regular classrooms. Often called "debate-centered instruction," the goal is to give more students the opportunity to benefit from debate-like learning opportunities, not just those who choose to take part in an intensive out-of-school program. The potential for such instruction to accelerate reading development, particularly for students far behind grade level, is an important subject for future research. While our study demonstrates exciting results for extracurricular debate participants, there may be even greater dividends to incorporating some of these practices into regular classroom-based instruction, to reach all students.

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