

Graduation Advantage Persists for Students in Deeper Learning Network High Schools: Updated Findings From the *Study of Deeper Learning: Opportunities and Outcomes*

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Can deeper learning approaches lead to higher graduation rates? A second round of graduation data from the *Study of Deeper Learning: Opportunities and Outcomes* suggests that perhaps they can.

According to the National Research Council (2012), “deeper learning” enables a student to transfer her knowledge and skills from one situation to another. The term also is used to refer to learning that results in a combination of cognitive competencies (mastery of content knowledge and complex problem-solving skills), interpersonal skills (such as communication and collaboration), and intrapersonal competencies and dispositions (such as learning how to learn and academic mindsets).

Consistent with the findings from the original *Study of Deeper Learning*, newly completed analyses including additional school pairs and an additional cohort of students find a graduation rate advantage of 8 percentage points for students in participating deeper learning network high schools compared with similar students in matched non-network high schools.

Background

The *Study of Deeper Learning: Opportunities and Outcomes*—funded by the William and Flora Hewlett Foundation—aimed to determine whether students who attended high schools with a mature (i.e., in existence for at least four years) and at least moderately well-implemented approach to promoting deeper learning experienced greater deeper learning opportunities and better outcomes than what they would have experienced had they not attended these schools. The study used a rigorous quasi-experimental design¹ to examine a set of high schools associated with 10 established networks from across the country that embrace the goals of deeper learning, promote instructional practices they believe are likely to lead to deeper learning competencies, and participated in the Hewlett Foundation’s Deeper Learning Community of Practice.²

The findings from the study were released in a series of three reports: one on the approaches to deeper learning implemented in the network high schools (Huberman, Bitter, Anthony, & O’Day, 2014), a second on students’ opportunities to engage in deeper learning in the network and comparison high schools (Bitter, Taylor, Zeiser, & Rickles, 2014; Zeiser, Taylor, Rickles, Garet, and Segeritz, 2014), and a third evaluating outcomes (through fall 2013) for students in network and comparison high schools. The study found that, relative to similar students attending comparison high schools, students who attended network high schools:

- Reported higher levels of academic engagement, motivation to learn, collaboration skills, and self-efficacy
- Attained higher scores on both the state achievement exams and the Organisation for Economic Co-operation and Development’s Programme for International Student Assessment–based Test for Schools

¹ Quasi-experimental designs are used to estimate the effect of a “treatment,” program, or intervention when units (e.g., students or schools) are not randomly assigned to different treatment conditions (see Shadish, Cook, & Campbell, 2002).

² Participating networks included Asia Society, Big Picture Learning, ConnectEd, EdVisions Schools, Envision Schools, Expeditionary Learning, High Tech High, Internationals Network for Public Schools, New Tech Network, and New Visions for Public Schools.

- Had higher rates of on-time graduation from high school, exceeding the comparison students by 9 percentage points
- Were more likely to enroll in four-year postsecondary institutions and selective institutions

In this brief, we provide findings related to high school graduation from updated analyses that extend the original analyses in two ways:

1. The updated analyses include graduation data from spring and summer 2014, allowing us to add an additional cohort of Grade 9 students to analyses of on-time graduation and five-year graduation.
2. The updated analyses include graduation data for two additional matched pairs of network and comparison high schools for which graduation data were not available in the original study.³

Sample and Data

The updated analyses focus on 14 network high schools that were considered moderate or high implementers of their network’s model, based on criteria established by each network. All schools were nonselective, served substantially disadvantaged populations, and were located in California or New York City. Because these schools were purposefully selected, the results cannot be generalized to all schools within the participating networks.

To examine the effects of network school attendance on student outcomes, we selected a matched comparison school (hereafter referred to as a “non-network high school”) for each network high school. Each matched pair of schools was located in the same geographic area and had similar incoming student populations (based on student demographics and eighth-grade achievement). Each non-network high school provided a proxy for what students might have experienced had they not attended the network high school. (See the [Technical Appendix](#) for more details about sample selection.)

The research team collected graduation data from participating school districts for students who entered Grade 9 between 2007–08 and 2010–11. Because districts generally do not have information on what happens to students once they leave the district, the team considered any student who left the district prior to high school graduation as a nongraduate (see “Definition for Graduation”).

³ Updated analyses also exclude one pair of schools in which the network high school ceased to provide graduation data to the district.

⁴ The graduation rates reported in the study may be lower than the graduation rates reported by districts and states because the graduation rates reported by districts and states generally incorporate students who enter school after Grade 9 and exclude students who were identified as transferring out of the school prior to graduation.

DEFINITION FOR GRADUATION

Students were identified as on-time graduates if they had a graduation record in the district data system within four years of entering Grade 9, including the summer after Grade 12. Students who received a regular high school diploma were counted as graduates in both California and New York, and students who received a diploma with exemptions or waivers on the California High School Exit Examination also were counted as graduates in California. Any students who did not have a graduation record (including students who dropped out, students who took longer than four years to graduate, and students who transferred outside of the district or to a private school) were classified as “not on-time graduates.” We counted students who transferred outside of the participating districts as not on-time graduates because some of the district data systems did not reliably distinguish students who transferred from those who dropped out. Therefore, we were able to identify high school graduates only among students who remained within and graduated from participating districts. On-time graduation was measured for students who entered Grade 9 between 2007–08 and 2010–11.

Because many of the students in our sample came from low-income families, and some of the schools participating in the study served a large number of English language learners, it is possible that some students in our sample needed more than four years to graduate. Therefore, we examined five-year graduation rates among students who entered Grade 9 between 2007–08 and 2009–10 because students who entered Grade 9 in 2010–11 had just completed the fourth year of high school at the time of data collection.⁴

Districts also provided student demographic and eighth-grade achievement data so that statistical models could account for differences in measured background characteristics between students in network high schools and students in matched non-network high schools.

Analysis Methods

To estimate the effects of attending a network high school on high school graduation, we conducted separate analyses for each network high school and its paired non-network high school. For each pair, we estimated the difference in graduation rates between students who attended the network high school and those who attended the non-network high school, adjusting for differences in student background characteristics. Analytic models also included weights to account for systematic differences between students who attended network high schools and students who attended non-network high schools in Grade 9. Using a meta-analytic approach, we then averaged the within-pair differences across pairs to obtain an overall estimate of the difference in graduation rates between students who attended network high schools and students who attended non-network high schools in the study. (See the [Technical Appendix](#) for more details about the analysis methods.) The overall estimates represent the effects for the particular group of network high schools included in the study and cannot be generalized to the larger population of network schools. The graduation rates presented in this brief were estimated after accounting for differences in measured student background characteristics.

Findings

The graduation results from this follow-up study are generally consistent with the results from the original study.

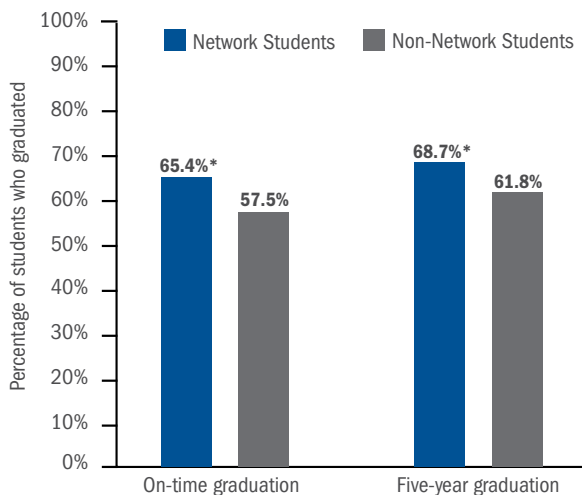
Students who attended participating network high schools were more likely to graduate from high school on time than were similar students in matched non-network high schools. As shown in Exhibit 1, approximately 65 percent of the students who attended participating network high schools graduated within four years from a high school in the same district, compared with approximately 58 percent of similar students who attended non-network high schools. Thus, attending a network high school increased the chances of on-time graduation by approximately 8 percentage points. This effect is slightly smaller than the estimated effect reported in the original study based on graduation data up until 2012–13, which was 9 percentage points. We observe a similar effect—approximately 7 percentage points—on five-year graduation rates.

The estimated effects of attending a network high school on on-time graduation varied across pairs of network and non-network high schools. While the estimated effects of network school attendance were positive in 11 of the 14 school pairs, the differences reached statistical significance in only five pairs (see the [Technical Appendix](#) for results by pair).

The effect of attending a network high school on on-time graduation was similar among students who entered high school with higher or lower achievement, as well as for male and female students. However, among the nine school pairs that provided information about eligibility for free or reduced-price lunch (FRPL), the effect of attending a network high school on on-time graduation was weaker for students who were eligible for FRPL than for students who were not eligible for FRPL.⁵ As shown in Exhibit 2, the effect of attending a network high school on on-time graduation was positive and significant both for students who were eligible for FRPL and for students who were not eligible for FRPL, but the difference in on-time graduation rates between students who attended network high schools and students who attended non-network high schools was smaller among students who were eligible for FRPL (5 percentage points) than among students who were not eligible for FRPL (13 percentage points).

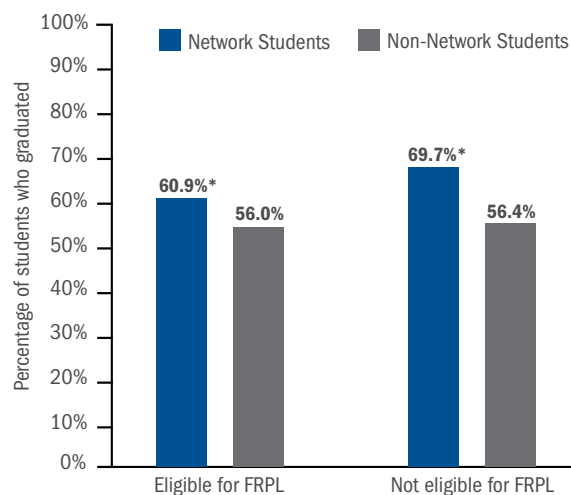
⁵ Eligibility for free or reduced-price lunch serves as an indicator of low-income status.

Exhibit 1: Percentage of Students Graduating From High School On Time and Within Five Years of Entering Grade 9



* Difference between network and non-network students is significant at the .05 level.

Exhibit 2: Percentage of Students Graduating From High School On Time, by FRPL Eligibility Status



Note: FRPL = free or reduced-price lunch. Analyses exclude five pairs of schools due to lack of data on students' FRPL eligibility.

* Difference between network and non-network students is significant at the .05 level.

Conclusion

These updated results support our previously published finding that students who attended deeper learning network high schools were more likely to graduate on time than were similar students attending matched non-network high schools. Furthermore, although the effect of attending a deeper learning network high school on on-time graduation was positive and significant both for students who were and for student who were not eligible for FRPL, the effect was weaker for students who were eligible for FRPL. The impact of attending a deeper learning network high school on on-time high school graduation was similar for male and female students as well as for students entering high school with higher and lower levels of Grade 8 achievement.

To better understand how deeper learning is related to student achievement outcomes, future analyses will examine student survey and assessment data to estimate the relationships between opportunities for deeper learning in the classroom, the competencies fostered by deeper learning, and on-time high school graduation.

References

- Bitter, C., Taylor, J., Zeiser, K. L., & Rickles, J. (2014). *Providing opportunities for deeper learning (Report #2 findings from the study of deeper learning: Opportunities and outcomes)*. Washington, DC: American Institutes for Research. Retrieved from <http://www.air.org/sites/default/files/downloads/report/Report%20%20Providing%20Opportunities%20for%20Deeper%20Learning%209-23-14.pdf>
- Huberman, M., Bitter, C., Anthony, J., & O'Day, J. (2014). *The shape of deeper learning: Strategies, structures, and cultures in deeper learning network high schools (Report #1 findings from the study of deeper learning: Opportunities and outcomes)*. Washington, DC: American Institutes for Research. Retrieved from http://www.air.org/sites/default/files/downloads/report/Report%20%20The%20Shape%20of%20Deeper%20Learning_9-23-14v2.pdf
- National Research Council. (2012). *Education for life and work: Developing transferable knowledge and skills in the 21st century*. Washington, DC: The National Academies Press.
- Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference* (2nd ed.). Boston, MA: Houghton-Mifflin.
- Zeiser, K., Taylor, J., Rickles, J., Garett, M. S., & Segeritz, M. (2014). *Evidence of deeper learning outcomes (Report #3 findings from the study of deeper learning: Opportunities and outcomes)*. Washington, DC: American Institutes for Research. Retrieved from http://www.air.org/sites/default/files/downloads/report/Report_3_Evidence_of_Deep_Learning_Outcomes.pdf