

Mentoring for At-Risk High School Students

Findings From a Study of Check & Connect



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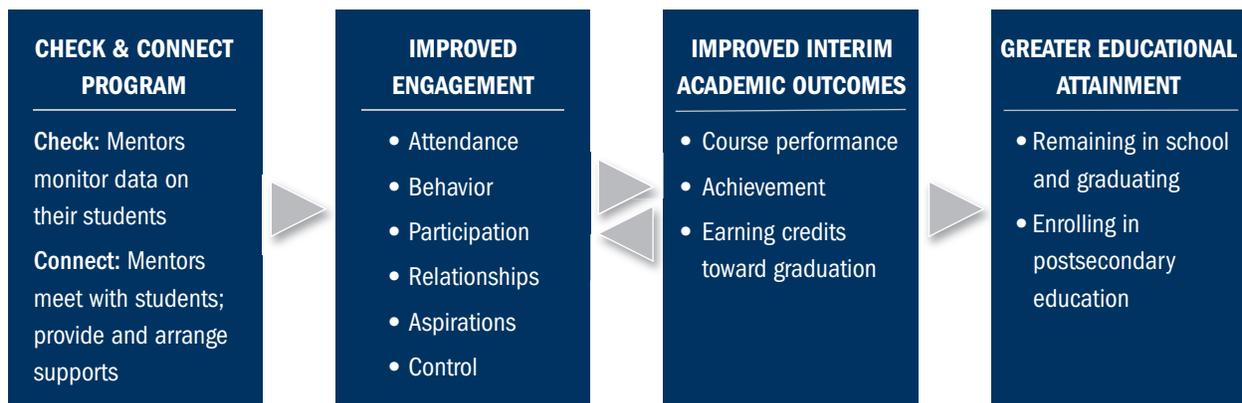
To improve graduation rates, districts and schools need clear, evidence-based information about the impact of dropout prevention strategies. Check & Connect, which has been implemented in 27 states and internationally, is a mentoring program designed to promote positive outcomes (including student engagement, progress and persistence, and school completion) through the provision of continuous, individualized student support.¹ This research brief describes a longitudinal study of Check & Connect in a large, urban district in California, conducted by American Institutes for Research (AIR).

Description of the Program

Check & Connect was developed by the University of Minnesota's Institute on Community Integration in collaboration with educators from Minneapolis Public Schools. The program aims to promote student engagement in school and learning and thereby improve academic performance and persistence and, ultimately, help students graduate (see Exhibit 1). In particular, trained mentors work throughout multiple years with students who are at risk for disengagement or dropout, monitoring the students' progress and providing them with persistent support.

True to its name, the Check & Connect program has two main components: check and connect. In the **check** component, mentors monitor indicators of student engagement in school (e.g., attendance, disciplinary referrals, and educational progress). In the **connect** component, mentors seek to intervene in a timely manner to reestablish and maintain students' connection to school and learning by enhancing students' academic and social competencies and by improving home–school communication.

Exhibit 1. Simplified Theory of Action for Check & Connect



Focus of the Study

Check & Connect was originally focused on students with learning, emotional, or behavioral disabilities, and prior research has demonstrated that the program has positive effects on school persistence and progression among such students.^{2,3} However, the program is increasingly being used with a broader population, and the study described in this brief is the first to rigorously test the effect of Check & Connect on high school completion among general education students. The study, funded by a grant from the

U.S. Department of Education's Institute of Education Sciences,⁴ examined the impact of Check & Connect on engagement, academic performance, and educational attainment among general education students at heightened risk of not graduating from high school. Specifically, this brief addresses the following questions:

- **Implementation:** How was Check & Connect implemented in a large, urban district with general education students identified as being at risk of not graduating from high school?
- **Service Contrast:** What academic supports did study participants receive, including those who were not assigned a Check & Connect mentor?
- **Impact:** What was the impact of Check & Connect on general education students' engagement, academic, and attainment outcomes?

Study Participants and Timeline

The study took place in a large urban district in California in an initial sample of 10 comprehensive high schools. As part of the study, Check & Connect was implemented for three school years, from the 2011–12 school year through the 2013–14 school year.

Selection and Training of the Mentors

Mentors are the heart of the Check & Connect program. In early summer 2011, the district hired five individuals as full-time district employees to serve as the Check & Connect mentors for the study. All five mentors had previous experience working with at-risk youth and received initial and ongoing training for their role as Check & Connect mentors by program developers based at the University of Minnesota. In each of the three years of Check & Connect implementation, the program developers provided ongoing professional development to the mentors and to a coordinator designated by the district to oversee the mentors and the implementation of Check & Connect.

Selection of the Students

The study followed 553 students in the 10 participating high schools who were in their first year of high school at the start of the study in spring 2011. The study sample was made up of students who were at risk of not graduating within four years of entering high school, based on their attendance and course performance in Grades 8 and 9 (see box titled “How the Study Identified Students At Risk of Not Graduating on Time”), and who had parental consent to participate in the study. The research team randomly assigned the students either to receive Check & Connect for the three years or to be part of a “business as usual” control group that would not receive Check & Connect. Random assignment was done within schools, and all study students within each school had a 50 percent chance of being assigned to the Check & Connect treatment group. There were 276 students in the treatment group and 277 students in the control group.

How the Study Identified Students At Risk of Not Graduating on Time

To identify students at risk of not graduating on time, in spring 2011 we collected data for general education students in the participating schools who had entered Grade 9 in 2005–06 and 2006–07. With graduation outcomes now known for these earlier cohorts of students, we conducted statistical analyses to identify the strongest eighth-grade and ninth-grade indicators of failure to graduate on time. There were four:

- Failed a Grade 9 course
- Failed Algebra I in Grade 8 or Grade 9
- Had at least one *needs improvement* or *unsatisfactory* citizenship grade*
- Absent 10 percent or more of the enrolled days in Grade 9

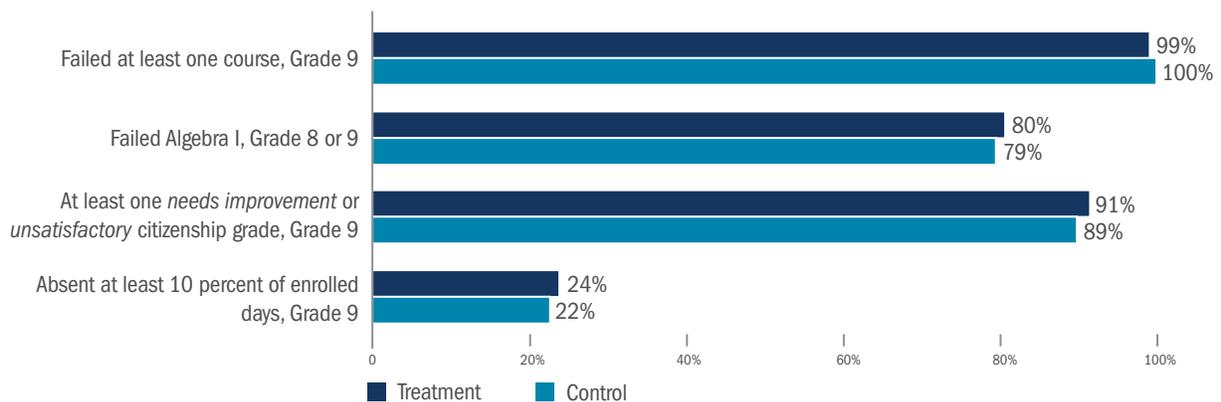
We then examined eighth- and ninth-grade data for our cohort of interest, that is, general education students in the 10 participating high schools who were in Grade 9 during the 2010–11 school year. Based on the presence of one or more of the four indicators and what we had learned with the earlier cohorts, we calculated each student's predicted probability of on-time graduation. Of the students in each of the 10 study schools with the lowest probabilities of on-time graduation (approximately 100 per school), a total of 553 students agreed to participate in the study and formed the study sample.

* In each course, students receive both academic and citizenship (or behavior) grades. The other possible grades are satisfactory, good, and excellent.

Characteristics of the Study Students

Because the study used random assignment, students in the treatment and control groups were expected to be the same, on average, at the start of the study, both in terms of their risk for not graduating on time and in demographic composition. Exhibit 2 shows that within both the treatment and control groups, nearly all of the students had failed at least one course in ninth grade, approximately 80 percent had failed Algebra I in either eighth or ninth grade, 90 percent had a *needs improvement* or *unsatisfactory* citizenship grade in at least one class, and between 22 and 24 percent of students had been absent for at least 10 percent of the days they were enrolled in the fall of Grade 9. The average probability of on-time graduation in both treatment and control groups was 55 percent.

Exhibit 2. Indicators of Risk Among Study Sample

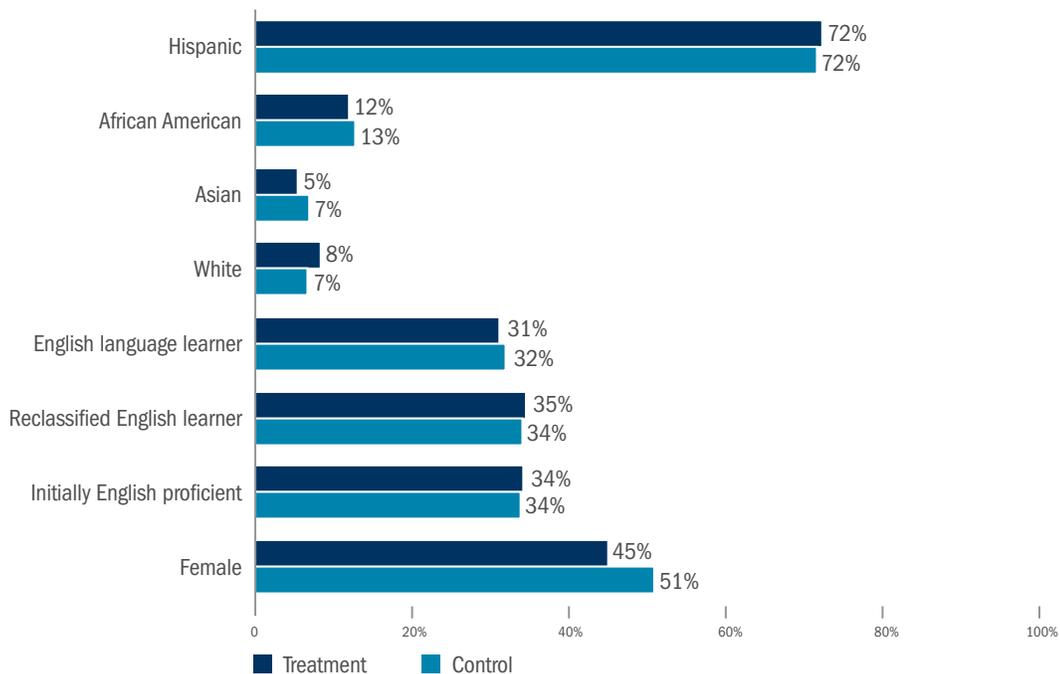


Note: $N = 553$. On none of the indicators is the difference between treatment and control students statistically significant at $p < 0.05$.

The two groups also had similar demographic compositions, shown in Exhibit 3. In both groups, 72 percent of the students were Hispanic; the two groups had similar percentages of African Americans, White students, and Asian students as well. The two groups were also alike in terms of students' English proficiency, with an almost even division in each group between English language learners, students reclassified as English proficient, and initially English proficient. The treatment group had fewer female students than the control group (45 percent versus 51 percent), but this difference was not statistically significant.

The similarity between the groups indicates that the randomization successfully created two groups equivalent at “baseline.” This means that any differences in student outcomes between the treatment and control groups can be attributed to Check & Connect.

Exhibit 3. Student Background Characteristics Among Study Sample



Note: $N = 553$. On none of the demographic characteristics is the difference between treatment and control students statistically significant at $p < 0.05$.

Implementation of the Program

With the mentors hired and the students selected, implementation of Check & Connect began, as planned, during the summer before the 2011-12 school year. Each of the five mentors was assigned a caseload of 50 to 60 treatment group students across two of the 10 schools.⁵ All five mentors remained in their roles throughout the three years of program implementation. Although each mentor was “based” at two schools, the mentors attempted to maintain relationships with and, to the extent possible, continue serving students who moved to another school or dropped out, as long as they remained in the general area.⁶

Data and Analysis

To address the first research question, about how Check & Connect was implemented in the study district, we relied mainly on data from monitoring forms that the mentors were expected to update weekly and submit monthly for each student on their caseload. (See “Monthly Monitoring Form” box.) For each treatment student in each of the three years the program was implemented, we focused on the following:

- Did the mentor record check data at least once a month during the academic year?
- On average, how many times per month did the mentor and the student meet?
- On average, how many minutes per month did the mentor spend with the student?

We also determined the percentage of treatment students who received the “full” program—which we defined as meeting with a mentor at least 20 times and having check data on all submitted monitoring forms during the school year—in each of the three years.

To address the second research question, about the academic supports in which both treatment and control students participated, we used data from surveys administered to all study students each spring. These surveys asked students whether they had a mentor and whether they participated in academic supports such as tutoring, online credit recovery, or college preparatory programs. This is our only source of data on the types of supports that control students experienced during the study. Examination of the “business as usual” experiences of the control students, particularly in comparison to the experiences of the treatment students, can aid in the interpretation of findings about impact, which are also based on comparisons of the two groups.

To address the third research question, about the impact of Check & Connect on student outcomes, we examined a range of engagement indicators, academic progress measures, and three ultimate outcomes: dropout from high school, graduation within four years of entering high school (i.e., on-time graduation), and graduation within five years of entering high school (see “Outcomes for Impact Analysis” box). To estimate the impact of Check & Connect on each outcome, we compared the treatment group to the control group with a statistical model that took into account student background characteristics and the school each student attended when the study began. The models for the engagement and interim academic outcomes also included weights to account for missing outcome data (e.g., because of high rates of mobility, 51 percent of students were missing administrative data during at least one of the three years of the study).

Monthly Monitoring Form

“CHECK” DATA

- Attendance (absences, tardies)
- Behavior (referral, suspension/detention)
- Academic performance (grades, credits)

“CONNECT”: COMMUNICATIONS LOG

- Date of contact
- Length of contact (minutes)
- Mode of communication (e.g., in person, by phone)

“CONNECT”: INTERVENTIONS PROVIDED

- Basic (e.g., discussing “check” data, problem solving)
- Intensive (e.g., facilitation of tutoring, participation in groups/activities, involvement of parents or school personnel)

Outcomes for Impact Analysis	
<p>ENGAGEMENT OUTCOMES</p> <ul style="list-style-type: none"> • Attended school for at least 90 percent of days enrolled during the fourth year of high school • Had fewer than two <i>unsatisfactory</i> citizenship grades during the fourth year of high school <hr/> <ul style="list-style-type: none"> • Participated in at least one extracurricular activity between the summer before the fourth year of high school and the following spring • Teacher-student relationships • Peer support for learning • Family support for learning • Future aspirations and goals • Control and relevance of school work 	<p>from district administrative data</p> <hr/> <p>from student survey data (spring 2014)</p>
<p>INTERIM ACADEMIC OUTCOMES</p> <ul style="list-style-type: none"> • Successful completion of at least one summer course in the summer before the fourth year of high school • Fewer than two course failures during the fourth year of high school • Passed the state high school exit exam by end of the third year of high school 	<p>from district administrative data</p>
<p>EDUCATIONAL ATTAINMENT OUTCOMES</p> <ul style="list-style-type: none"> • Dropped out of a high school within the state • On-time (four-year) graduation within the state (by summer 2014) • Five-year graduation within the state (by summer 2015) 	<p>from district administrative data, supplemented with state administrative data</p>

Findings

How Was Check & Connect Implemented in the Study?

As the study progressed, increasing numbers of treatment students did not receive Check & Connect as planned, in large part because of high rates of mobility. For the check component, mentors recorded check data at least once per month during the school year for 65 percent of the treatment students during the second year of high school, 48 percent of treatment students during the third year of high school, and 33 percent of treatment students during the fourth year of high school. As shown in Exhibit 4 (“Percent of students with check data” columns), the percentages were higher for students who remained in district schools⁷ (“non-transfer students”) than for students who left the district (“transfer students”).⁸

For the connect component, mentors and students met twice per month, on average, in each of the three school years of the study. Again, non-transfer students averaged more meetings than transfer students, and although the average number of meetings for non-transfer students increased during the course of the study, the average number of meetings for transfer students declined (Exhibit 4, “Average number of meetings per month” columns). Similarly, the average number of minutes per month for which mentors and students met ranged from 35 minutes in the second year of high school to 39 minutes in the third year, but these figures mask higher averages, and a greater increase over time, for the non-transfer students as compared to the transfer students (Exhibit 4, “Average number of minutes in meetings per month” columns).

These differences in mentor contact with non-transfer and transfer students indicate that student mobility played a large role in mentors’ ability to implement Check & Connect as intended. Throughout the course of the three years that Check & Connect was implemented, more and more students left the study schools. By the fourth year of high school, almost half of the treatment students were no longer in district schools. About 30 percent of the treatment students were not enrolled in the district at all, and about 18 percent were enrolled in district-affiliated charter schools or other nonstandard schools in which check data were not available and where it was not easy for mentors to meet with students.⁹ Transportation time and lack of explicit support from students’ new schools were among the barriers that mentors faced.

Exhibit 4. Implementation Measures Among Treatment Group Students

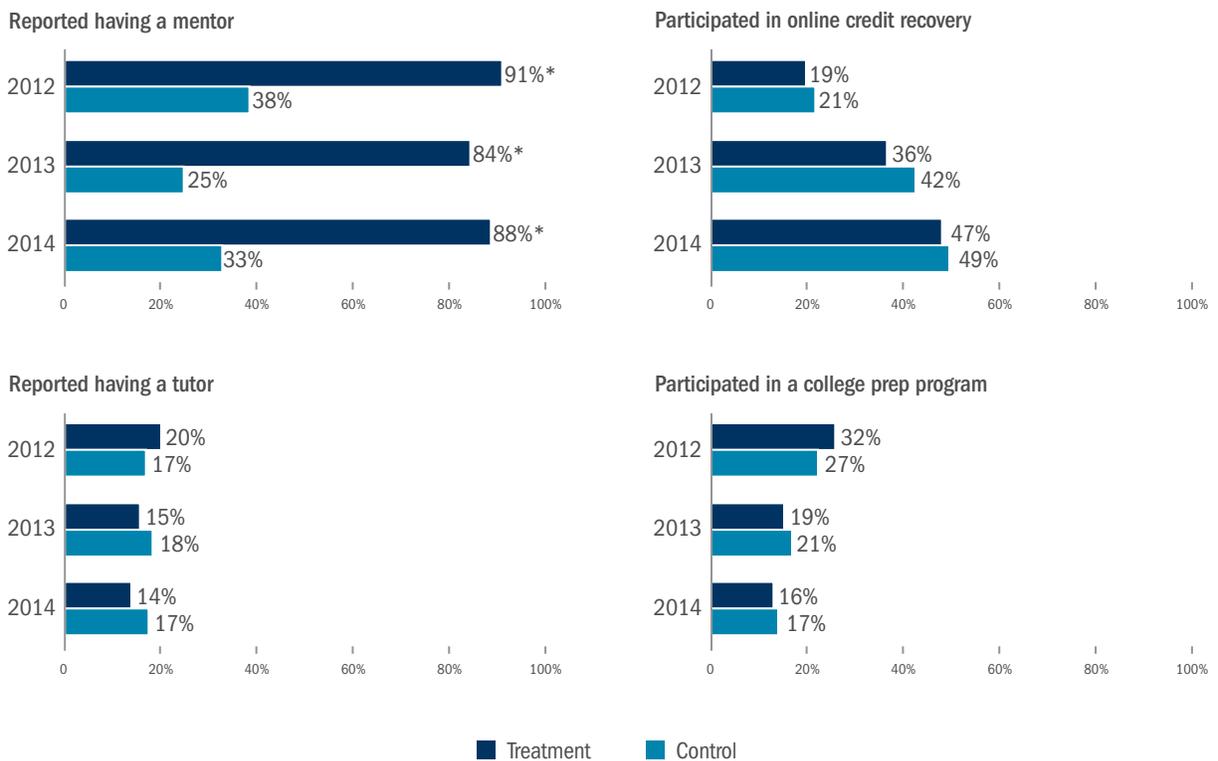
Academic year	Number of students		Percent of students with check data		Average number of meetings per month		Average number of minutes in meetings per month	
	Non-transfer students	Transfer students	Non-transfer students	Transfer students	Non-transfer students	Transfer students	Non-transfer students	Transfer students
2011-12	226	50	73.9%	24.0%	2.2	1.1	36.8	24.4
2012-13	169	107	71.6%	4.7%	3.0	0.9	49.5	19.5
2013-14	148	128	60.1%	0.8%	3.2	0.7	60.9	14.2

Only a third of treatment students received a “full” dose of Check & Connect for more than one year. As mentioned earlier, we defined “receiving the full Check & Connect” in a given year as meeting with a mentor at least 20 times and having check data on all monitoring forms submitted during the school year. Approximately 59 percent of the students in the treatment group received full treatment for at least one year, 34 percent received full treatment for at least two years, and 14 percent received full treatment for all three years. Interestingly, the 14 percent of students who received Check & Connect for all three years had an average predicted probability of graduation of 0.66, while the rest of the treatment group students had an average predicted probability of graduation of 0.53.¹⁰ This suggests that, paradoxically, the relatively few students who received the “full” program—that is, for all three years, as intended—may have been at somewhat lower risk than the larger group of students who only partially received the program.

What Services Did Study Students Receive?

Check & Connect students were more likely than control students to have a mentor, but they were no more likely to report participating in academic supports. In all three years of implementation, treatment students were significantly more likely than control students to report having a mentor (Exhibit 5, top left). However, treatment students were not more likely to report participating in a credit recovery program, tutoring, or college preparatory programs such as AVID or GEAR UP (Exhibit 5, top right, bottom left, and bottom right). In other words, control students seemed to have access to the same types of targeted academic supports as treatment students. Because access to (and participation in) such supports is one mechanism through which students might benefit from Check & Connect, it is important to keep in mind the degree of similarity between treatment and control group experiences while interpreting results about the impact of Check & Connect on student outcomes, discussed next.

Exhibit 5. Service Contrast Measures



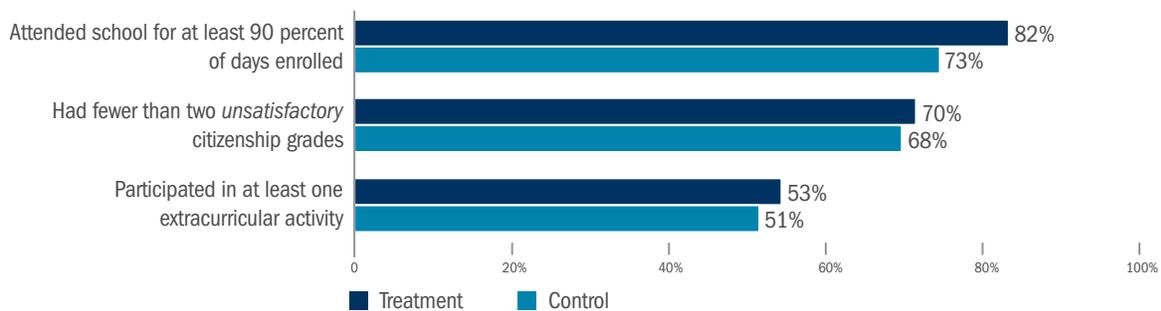
* Difference between treatment and control students is significant at $p < 0.05$.
 Note: N ranges from 493 to 522 in 2012, 500 to 509 in 2013, and 425 to 443 in 2014.

What Was the Impact of Check & Connect?

Check & Connect did not improve student outcomes, including on-time graduation, for the students in the study. For 13 of the 14 student outcomes, Check & Connect had no significant effect (Exhibits 6, 7, 8, and 9). This was true not only for analyses that compared the whole treatment group to the control group but also for analyses that looked at impact among the treatment group students who received the full

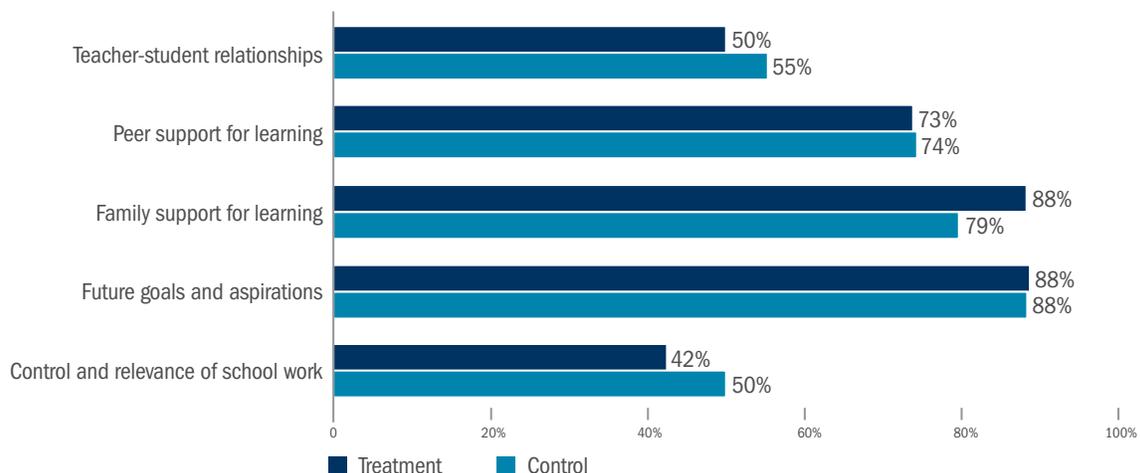
treatment for three years (as defined earlier).¹¹ The one exception was that treatment students were significantly more likely than control students to enroll in and pass summer school courses in the summer after their third year of high school (Exhibit 8). Although this likely demonstrates the impact of a specific strategy that mentors employed in an attempt to improve students' chances of on-time graduation, treatment students were not ultimately more likely than control students to graduate from high school within four or five years of entering Grade 9, nor were they less likely to drop out of high school. As shown in Exhibit 9, 52 percent of treatment students and 53 percent of control students graduated by summer 2014, four years after starting high school. By the end of the fifth year of high school, graduation rates were 59 percent among treatment students and 58 percent among control students. In contrast, 22 percent of treatment students and 19 percent of control students were identified as having dropped out of school by summer 2015. None of these differences were statistically significant.

Exhibit 6. Behavioral Engagement Outcomes



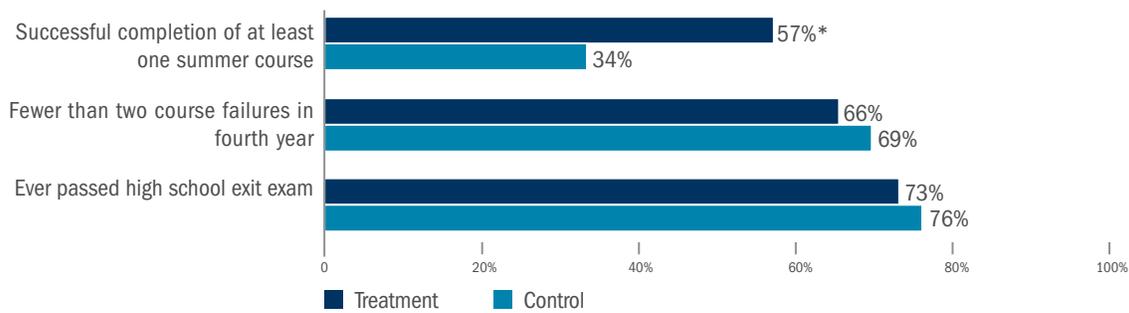
Note: Attendance outcome $N = 292$; citizenship outcome $N = 293$; extracurricular outcome $N = 421$. On none of the measures is the difference between treatment and control students statistically significant at $p < 0.05$.

Exhibit 7. Affective and Cognitive Engagement Outcomes (percent who agreed or strongly agreed to all items constituting scale)



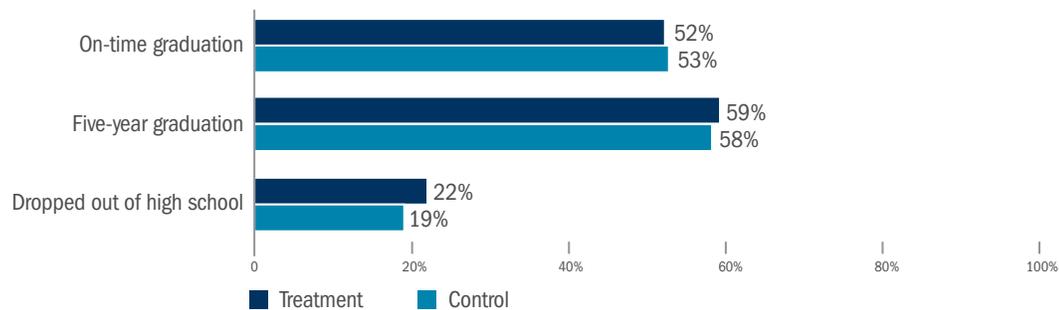
Note: Measures of affective and cognitive engagement come from the Student Engagement Index.¹² All survey items are positively worded so that agreement indicates higher levels of engagement. N ranges from 427 to 430. On none of the measures is the difference between treatment and control students statistically significant at $p < 0.05$.

Exhibit 8. Interim Academic Outcomes



* Difference between treatment and control students is statistically significant at $p < 0.05$.
 Note: N ranges from 290 to 329.

Exhibit 9. Ultimate Attainment Outcomes



Note: $N = 553$. On none of the outcomes is the difference between treatment and control students statistically significant at $p < 0.05$. Percentages do not sum to 100 percent because students were also classified as transferred out of the state or country, still enrolled, or transferred to an adult education program.

Implications

Despite prior evidence of effectiveness for students with disabilities, Check & Connect did not have a positive impact on outcomes for general education students in a large, urban district in California. There are a number of possible explanations for this overall finding.

First, it seems likely that the challenges mentors experienced in reaching the many students who transferred to other schools, particularly charter schools and schools outside the district, limited mentors' ability to have an impact on these highly mobile students. Mentors were able to fully implement Check & Connect only with students who stayed in the district schools, who started out with somewhat higher probabilities of graduating and were thus less at risk than the students who left district schools. Perhaps to have an overall effect, the mentors would have needed to reach the highly mobile students, who were at greater risk than the students who got full treatment. But the barriers the mentors faced in trying to reach those students were significant. It is possible that a mainly school-based version of Check & Connect, as used in our study, is not the right model for districts with a high degree of student mobility, especially where mobility and risk are closely intertwined, and where students have many high school options in addition to the option of dropping out. This issue could potentially be avoided by assigning mentors smaller caseloads, thereby

allowing them to spend more time connecting with students who have transferred or left, but this would obviously have cost implications.

Second, our finding that control students participated in targeted academic supports at about the same rates as treatment students calls into question the program's effectiveness in referring students to supports that were not already widely known and readily available to all students. Perhaps a wide array of supports simply did not exist in the local area. Another possibility is that even though most control students did not have mentors, per se, they nevertheless had access to information about the available supports, perhaps through school personnel such as teachers or counselors, and had sufficient motivation to access the supports. It may be that in this district's context, merely having a mentor, compounded by the mobility issue, was not enough to change outcomes for the treatment students.

Finally, in our study, implementation of Check & Connect with students began in the summer before their second year of high school, after many had already begun to fall behind. It is possible that the second year of high school may simply be too late, and that to be effective, Check & Connect would need to start reaching students earlier, in ninth grade or even before. Some studies that have found positive impacts of Check & Connect did in fact begin implementation in earlier grade levels.^{13,14,15,16}

Further analyses and ongoing research are needed to determine how to better leverage the structure of the Check & Connect model to try to reach the most at-risk high school students in urban districts, where high rates of student mobility are common, as well as to study other models and strategies to improve outcomes for all students. Check & Connect may be effective in certain settings, under particular circumstances, or in combination with other strategies and interventions, but context matters and should be considered before adopting the program.

Endnotes

- ¹ For more information about the Check & Connect program, see <http://checkandconnect.umn.edu/model/default.html>.
- ² Sinclair, M. F., Christenson, S. L., Evelo, D. L., & Hurley, C. M. (1998). Dropout prevention for youth with disabilities: Efficacy of a sustained school engagement procedure. *Exceptional Children, 65*(1), 7–21.
- ³ Sinclair, M. F., Christenson, S. L., & Thurlow, M. L. (2005). Promoting school completion of urban secondary youth with emotional or behavioral disabilities. *Exceptional Children, 71*(4), 465–482.
- ⁴ Grant R305A110252. The opinions expressed are those of the authors and do not represent the views of the Institute of Education Sciences or the U.S. Department of Education.
- ⁵ This caseload size is within reasonable guidelines according to the Check & Connect program implementation manual for full-time mentors.
- ⁶ Most students had the same mentor throughout the study, but some switched mentors when they transferred to another one of the 10 study schools.
- ⁷ “District schools” refers here to schools that submitted student data to the district data system. Some charter schools, including some authorized by the district, did not take part in the data system and thus are not considered “district schools” in our analysis.
- ⁸ Analysis of detailed enrollment records shows that very few of the sample students—only six treatment students and eight control students—dropped out directly (and permanently) from district schools in their second, third, or fourth year of high school. Most transferred out of the district first (e.g., to a charter school) or did not drop out until after their fourth year.
- ⁹ Control group students left district schools at rates similar to treatment students. By the fourth year of high school, 25 percent of the control students were not enrolled in the district at all and 22 percent were enrolled in district-affiliated schools (such as charter schools) that did not participate in the district data system.
- ¹⁰ Additional analyses suggest that the predicted probabilities as calculated at the beginning of the study may have been underestimates, particularly in some of the schools. Our initial predictions did not take school into account, despite the fact that the participating schools varied greatly in graduation rates. When the predicted probabilities are recalculated taking school into account, the 14 percent of students who received Check & Connect for all three years had an average predicted probability of graduation of 0.76 (rather than 0.66), while the rest of the treatment group students had an average predicted probability of graduation of 0.59 (rather than 0.53).
- ¹¹ Analyses examining treatment effects for students who received the treatment (“treatment on the treated”) employed an instrumental variables approach to account for the fact that, whereas assignment to the treatment group was random, actually being treated (within the treatment group) likely was not.
- ¹² Appleton, J., Christenson, S. L., Kim, D., & Reschly, A. (2006). Measuring cognitive and psychological engagement: Validation of the Student Engagement Instrument. *Journal of School Psychology, 44*(5), 427–445.
- ¹³ Sinclair, M. F., Christenson, S. L., Evelo, D. L., & Hurley, C. M. (1998). Dropout prevention for youth with disabilities: Efficacy of a sustained school engagement procedure. *Exceptional Children, 65*(1), 7–21.
- ¹⁴ Sinclair, M. F., Christenson, S. L., & Thurlow, M. L. (2005). Promoting school completion of urban secondary youth with emotional or behavioral disabilities. *Exceptional Children, 71*(4), 465–482.
- ¹⁵ Maynard, B. R., Kjellstrand, E. K., & Thompson, A. M. (2014). *Effects of Check & Connect on attendance, behavior, and academics: A randomized effectiveness trial*. Paper presented at the Spring Conference of the Society for Research on Educational Effectiveness, Washington, DC. Retrieved from <https://www.sree.org/conferences/2014s/program/index.php#session5b>
- ¹⁶ Guryan, J., Christenson, S., Claessens, A., Engel, M., Lai, I., Ludwig, J., ... Turner, M. C. (2016). *The effect of mentoring on school attendance and academic outcomes: A randomized evaluation of the Check & Connect program* (working paper series WP-16-18). Evanston, IL: Northwestern Institute for Policy Research.



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