



CAN INFORMING PARENTS HELP HIGH SCHOOL STUDENTS SHOW UP FOR SCHOOL?

REKHA BALU
MDRC

KRISTIN PORTER
MDRC

BRAD GUNTON
New Visions for
Public Schools

Results from a Partnership Between New Visions for Public Schools and MDRC

NOVEMBER 2016

ABSTRACT MDRC, an independent, nonprofit research firm, partnered with New Visions for Public Schools, which supports a network of district-run high schools in New York City, to design and evaluate an intervention aimed at improving high school students' attendance. The intervention used text messaging to send parents daily absence updates and weekly attendance summaries; students were randomly assigned to have their guardians receive messages. The evaluation found that the intervention did not change attendance rates in the second semester of the 2015-2016 school year.

INTRODUCTION

Graduating high school is a prerequisite for economic success, and yet nationwide barely 80 percent of students in public schools graduate on time. Reforms to address this problem range from restructuring schools to revamping curricula. However, a growing body of research suggests that a low-cost way to boost graduation might begin with simpler measures: getting students to show up for school.¹

Currently, far too many students do not, especially in urban high schools. Nearly one in five high school students are chronically absent each year, meaning they miss 15 or more days of school.² Even if those absences are not consecutive, in terms of lost instructional time, missing that amount of high school is the equivalent of missing entire eras of global history or never reading seminal pieces of literature.

As students become more independent in high school, parents may not know whether their children make it to school.³ In New York City, parents' information gap is even wider because of the structure of the city-wide high school choice system: Tens of thousands of students travel across five boroughs to attend school, making it challenging for parents to track whether their children arrive.

The high rates of absence mentioned above suggest that the existing methods schools and districts are using to inform parents when their children are absent are not effective enough. Many districts send parents automated voice messages ("robocalls") alerting them to a student's absence. Attendance Works, a national non-profit organization monitoring attendance patterns and research into attendance, notes that calls from a principal can be useful for occasional awareness messages but that regular alerts in a robotic voice are often ignored by parents, especially in an age when parents tend to be overburdened by information.⁴ Staff members in various school districts around the country have acknowledged the same to MDRC in personal communications. Moreover, parents may view robocalls from schools as discouraging at best and overly punitive at worst. But few districts are willing to stop this form of outreach without a clear replacement, and there is as yet little evidence regarding such replacements.

Together, New Visions for Public Schools and MDRC designed and evaluated one such potential replacement in New York City: a low-cost text-messaging intervention. New Visions is a school-support organization providing data tools, professional development, coaching, and other forms of assistance to 70 district-run schools that enroll mostly low-income students (in addition to its own charter schools and other New York City Department of Education community schools). MDRC is a nonprofit, nonpartisan research organization with more than 40 years of history designing promising new interventions, evaluating existing programs using rigorous research designs, and providing technical

assistance to build better programs and deliver effective interventions on a large scale.

THE INTERVENTION

The goal of this demonstration was to develop and test an intervention that would catch parents' attention and provide them with frequent and accurate information about their students' absences from school, without burdening school staff members or using other valuable school resources.

Mode

Text messaging was selected as a viable mode for delivering information for several reasons. First, there is emerging evidence that text messaging can promote positive routines among students and parents.⁵ Second, text messaging is hypothesized to be more noticeable than automated phone calls because parents can view the messages easily and quickly, and it is hypothesized to be more effective because text messages can seem warmer than a robotic voice. And third, a text-messaging approach can be easily expanded to serve thousands of people at negligible additional cost, which a staff-driven approach cannot.

New Visions therefore wrote software that accessed daily attendance data and triggered automated text messages when students were absent. While there have been other randomized controlled trials of outreach to parents about attendance, this study is unusual in that it was able to test same-day absence information conveyed in text messages. The handful of other randomized controlled trials that used text messaging did not evaluate how attendance changed in response to regular information over time. These trials found increases in attendance in the day or week following a text message, but they did not examine whether providing frequent absence information boosts attendance throughout a school semester or year.⁶

Content

In designing the text-messaging intervention, the study team drew on three mechanisms shown to be effective in recent experiments:

- 1. GIVING PARENTS THE CHOICE TO OPT OUT RATHER THAN ASKING THEM TO OPT IN.** The intervention offered messages to all parents, with the option to opt out. Setting the “default” to send messages rather than asking parents to sign up simplifies parents’ access to information and reduces hassle.⁷
- 2. REMINDERS.** Parents of absent students received same-day text message updates and all parents in the intervention group received weekly attendance summaries.
- 3. PERSONALIZATION.** Messages were sent in the family’s home language and showed the student’s first name and the school’s name, as well as the relevant school phone number to call if a parent had questions.⁸ A given student could have multiple guardians, each receiving messages in a different language.

Because this test of the messaging system was its first, the research team opted for a strategy that focused simply on providing information neutrally. The messages did not frame that information in positive or negative terms or prompt parents to take any particular actions.

Timing

The intervention focused on the second semester of the school year, when frequent holidays interrupt school routines and student attendance tends to plummet. Daily messages were sent between 6 p.m. and 10 p.m. on the day a student was absent, and weekly summary messages were sent on Saturday mornings.

Participation

The goal of this demonstration was to implement the intervention as a district would in practice. Doing so meant delivering the intervention to parents of *all* high school students randomly assigned to receive it. This approach also offered benefits to the evaluation: It is difficult to predict for which students the intervention would be most effective. Targeting any one subgroup could mean missing potential effects on other subgroups or even overall effects on the full population of students.

In addition, to maximize the amount of information conveyed about each student, the intervention was sent to all guardians associated with a student who had valid cell phone numbers (rather than just one guardian).⁹

Relationship to Existing Efforts to Improve Attendance

The intervention was meant to enhance “business-as-usual” outreach, not to replace it. Text messages did not supplant robocalls or other forms of communication that schools may have initiated.¹⁰ Rather, the text messages provided extra information in a new form, which could have helped if parents were not noticing or paying attention to information received in other forms.

THE STUDY

As mentioned earlier, the study took place in New York City district-run public high schools belonging to the network managed by New Visions. To be eligible for the study, schools had to be able to upload attendance data daily, with at least 80 percent accuracy in recording students’ absences.¹¹ To create the greatest possible contrast between the group receiving the intervention and the control group, the study excluded a few schools

that were already using text messaging to communicate with parents about attendance. The study then randomly assigned high school students and their guardians to receive the text-message intervention described above or to receive usual forms of outreach (which could have varied from school to school).¹²

The Sample

The analysis sample consists of high school students in 11 schools who had at least one parent or guardian residing with them who (1) had active cell phones at the start of the study, (2) were authorized to be text messaged, and (3) did not opt out before students were randomly assigned.¹³ Using these criteria, 3,957 students were selected for the study. Most students had just one guardian receiving messages, but at least 29 percent had multiple guardians. Generally, the text-message participants and those receiving usual outreach were similar to each other at the start of the intervention in ways relevant to the study. They had similar first-semester attendance rates (both about 90 percent), proportions of chronically absent students (both about 23 percent), and proportions with a non-English speaker in the household (both about 25 percent).

The study results apply to those students whose parents have active cell phones. Because of the additional sample eligibility criteria described above, the study sample does not represent all of the students in the study schools: 81 percent of students whose guardians had active cell phones as of January 2016 are in the analysis sample; the other 19 percent are not in the sample because they had guardians who were unauthorized or who opted out before random assignment occurred.¹⁴

Analysis and Results

The primary outcome of interest was each student's attendance rate during the time that student was enrolled in the 71 days of the intervention (from

February break until the last day of classes before state exams). This definition retains all students in the sample, including students who transferred or dropped out. All students were weighted equally.¹⁵ The study estimated the average effect of *intended participation* in the New Visions text-messaging intervention, rather than the effect of students' guardians actually receiving text messages.¹⁶ This "intent-to-treat" effect captures the reality that any school district would face when implementing a system like the one in this evaluation: Some parents will change phone numbers or opt out after an outreach effort begins.

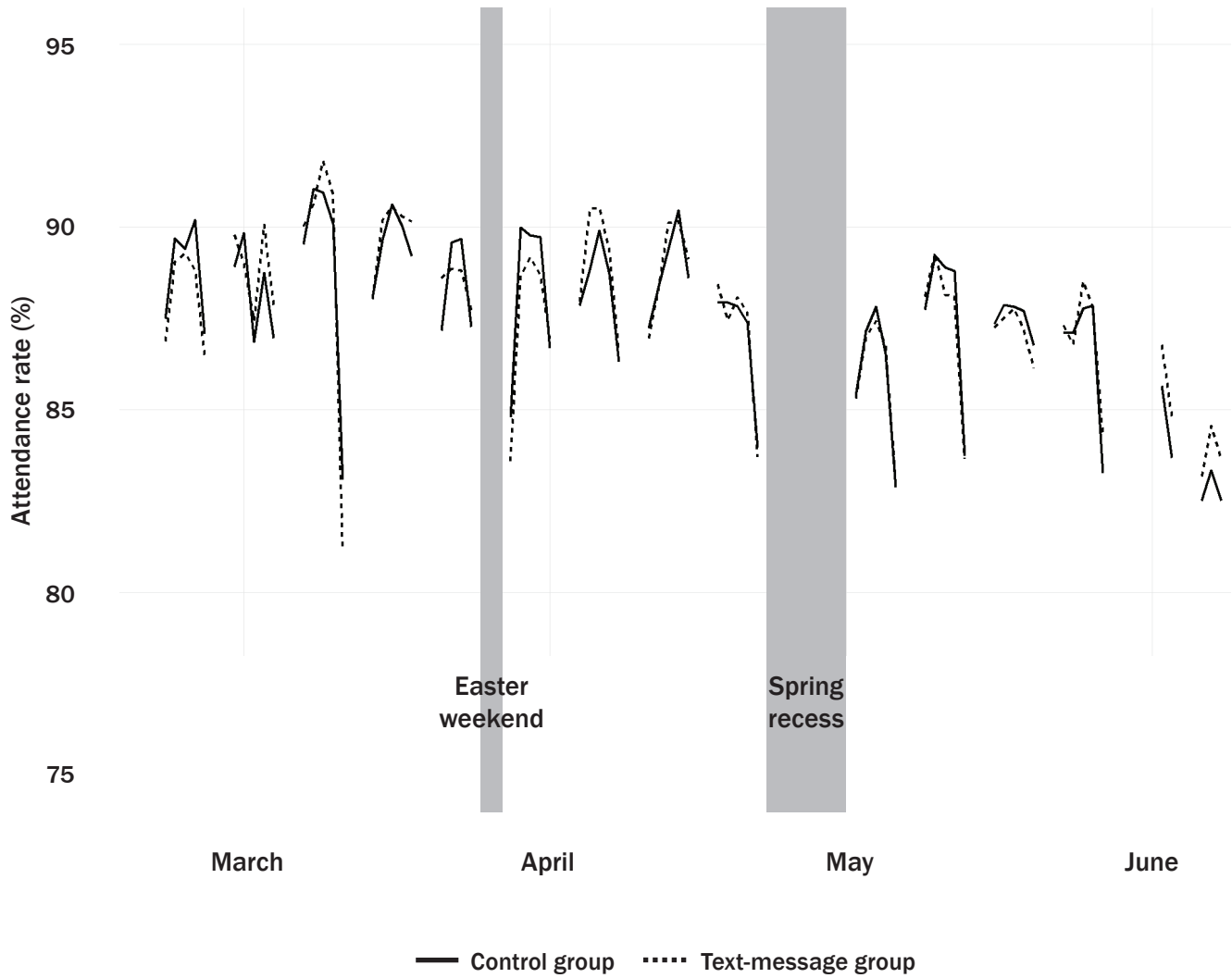
The study did not find that the text messages had a statistically significant or meaningful effect on student attendance. Both the text-message and control groups have second-semester attendance rates of about 86 percent. The estimated effect is small in practical terms (less than 1 percentage point, or about half a day of additional attendance, on average) and in terms of statistical significance (it is not significant at the 0.10 level typically used in education research). The study has sufficient sample size to draw a conclusion about the true effect of the intervention.¹⁷

As shown in Figure 1, second-semester attendance follows the same pattern for both the text-message group and the control group: Attendance declines over the course of the semester, with the steepest decline in June. It typically declines after a holiday and after each weekend, with a bit of an increase midweek. Although the text-message group appears to attend at a slightly higher rate at times during the trial, there is no consistent pattern suggesting that that group attended at a higher rate during some months or on certain days of the week.

Consider also that there is a strong positive correlation (0.9) between the first- and second-semester attendance rates for both the text-message group and the control group, and that attendance declines for both groups in

FIGURE 1

Daily Attendance Rates of Students in the Text-Message Group and the Control Group



SOURCE: Daily attendance data from New Visions for Public Schools and the New York City Department of Education.

NOTE: Dark shading indicates holidays and breaks in the lines indicate nonschool days (generally weekends).

the second semester. The intervention did not shift the attendance trajectory or patterns that the text-message group set in the first semester. In fact, similar proportions of students in the two groups improved their attendance between semesters (30 percent in the control group compared with 29 percent in the text-message group) and maintained the same attendance rate (11 percent, compared with 10 percent of the control group).

The study conducted exploratory analyses that investigated effects within particular types or subgroups of students. There were no statistically significant differences in impacts on students in different grade levels; on students with English-speaking parents compared with those with at least one non-English-speaking parent; or on those with one parent receiving text messages compared with those with two or more.

The study also conducted an exploratory analysis that investigated effects on the rate of chronic absenteeism (as mentioned above, defined as missing 15 or more days of school in a year). That outcome can sometimes show gains even when the overall attendance rate does not. This evaluation did not find an impact on chronic absenteeism either, however.

DISCUSSION

The design of the text-messaging intervention was based on the hypothesis that parents and guardians of high school students lack consistent and accurate information about whether their children make it to school, and that current school-outreach methods or district-wide efforts such as robocalls are inconsistent or not noticed. The intervention aimed to provide consistent and timely information that could be more noticeable. There are several possible explanations for the lack of meaningful effects detected:

1. INFORMATION (KNOWLEDGE ABOUT ABSENCES) MAY NOT SUFFICE.

The problem may be that guardians lack resources or time to address students' absences, and therefore need encouragement, support, or even referrals to services that can help them resolve those challenges. Alternatively, guardians may need to receive information worded in ways that prompt them to action.

Other attendance interventions have focused on correcting parents' beliefs, providing information about a student in comparison with others, and mentoring. On the lower-intensity end of the spectrum, an experimental evaluation by Rogers and Feller found that occasional summaries of attendance information sent by postcard boosted attendance in an urban district. Those postcards were designed to correct parents' incorrect beliefs about students' absences.¹⁸ In another study, reminders before a holiday or another day that had historically seen many absences increased attendance by 2 percentage points on the targeted day, though the study in question did not report on sustained effects.¹⁹ On the higher-intensity end of attendance interventions, a nonexperimental evaluation found that attendance increased by 5 percentage points when New York City high school students with histories of chronic absenteeism were assigned mentors to provide attendance encouragement and help them address the underlying reasons for their absences.²⁰

2. THE TARGET POPULATION MAY HAVE BEEN TOO BROAD TO DETECT EFFECTS.

The theory of change for this intervention was that reaching guardians of all students, rather than targeting chronically absent students, would boost average attendance rates. However, if one wants to increase the attendance rates of students who are chronically absent, and shift the overall distribution of students' attendance rates higher, then practitioners may need

a more intensive or longer-running intervention. The average second-semester attendance rate among those who opted out during the study was about 10 percentage points lower than the average attendance rate of those who remained. If lower-attending families could have benefited more from an intervention, perhaps they needed referrals to services or something more than information to remain in the study. An information-only intervention may not be a solution for the guardians of chronically absent students.

3. THE INTERVENTION MAY NEED MORE INTENSITY OR DIFFERENT TIMING.

A second-semester launch assumed that it is possible to shift attendance trajectories midway through the year by providing information during the time of year when attendance starts to wane. However, to shift or reverse a pattern that has been set early in the year may require a more intensive intervention than what was offered. The intervention might have to last longer, have different content, or engage parents and students to a greater extent.

4. THERE MAY NOT HAVE BEEN SUFFICIENT CONTRAST BETWEEN THE INTERVENTION AND “BUSINESS-AS-USUAL” EFFORTS TO INFORM PARENTS ABOUT ATTENDANCE ISSUES.

Midyear interventions that provide only absence updates may not represent enough of a contrast with business-as-usual notification to guardians to produce a different result. Schools may have been conducting ad hoc outreach to both text-message and control group students, since they did not know which students or guardians were sent text messages. Such ad hoc efforts could have reduced the contrast between the text-message group and the control group. It also is possible that student guardians were more familiar with the business-as-usual robocalls and therefore noticed them more, or that voice mails plus text messages either did

not present enough extra information to be useful or actually presented too much, and overloaded them.²¹

Even low-cost interventions need to be substantial enough to warrant the effort it takes to implement them. The program contrast created by purely informational text messages appears to be inconsequential, when provided on top of other information and outreach. However, if this intervention were introduced in schools where no other attendance outreach was happening, then it might represent a meaningful enhancement.

RECOMMENDATIONS

The research partnership identified some potential directions that districts and schools interested in testing attendance-messaging interventions could pursue:

- **TARGET NINTH-GRADE STUDENTS IN THEIR FIRST SEMESTERS:** Given the strong relationship between first- and second-semester attendance, it may be useful to design an intervention that attempts to affect students' attendance patterns as they make the transition to high school.
- **BUILD MORE COMPREHENSIVE RELATIONSHIPS WITH PARENTS:** It may be that parents who only received messages about attendance saw them as punitive. Text messaging may be useful if it builds trust and connection with parents. It could be useful to develop and test a more comprehensive text-message outreach plan that provides more than just one-dimensional messages and alerts.
- **FOCUS ON PARENTS AND STUDENTS TOGETHER:** While this study focused on parents as a factor in the attendance equation, attendance in high school is a decision largely made by students and supported or monitored by parents and schools. It may be helpful

to engage parents and students together to identify and address students' barriers to attendance.

NOTES

1 Allensworth and Easton (2007); Bruce, Bridgeland, Fox, and Balfanz (2014); Balfanz and Byrnes (2014).

2 U.S. Department of Education, Civil Rights Data Collection (2016).

3 Attendance Works (2016).

4 Hammond (2014).

5 Castleman and Page (2015); York and Loeb (2015); Bergman (2016).

6 Rogers and Feller (2016b).

7 Rogers and Feller (2016a); Bergman and Rogers (2016).

8 Castleman and Page (2015).

9 The intervention used a Google Apps script in conjunction with Twilio, which supports large-scale text messaging, to send messages automatically to relevant parents and guardians. Parents could reply at any time during the study to opt out or to request messages in a different language. The script automatically updated with parents' preferences and removed students who became inactive, whose parents had opted out, or whose parents' contact information had changed. A list of absent students submitted by schools to the Department of Education was accessed by a New Visions data warehouse by 1 p.m. each day. The script then limited the list of absent students to those in the text-message group. For each student who was absent that day, the script would generate the prespecified content of the text message in the preferred language, and load those messages and corresponding cell phone numbers into a spreadsheet. Twilio would then access the sheet each afternoon and send messages to guardians of students absent on that day.

10 New Visions provides an array of attendance-oriented tools such as an attendance heat map, which color-codes student attendance rates and updates itself automatically throughout the year.

11 This 80 percent criterion meant there was some error

(both false positives and false negatives) in daily absence updates. The error proved to be too great at one school, which withdrew from the study in the first month due to concerns that the absence notifications were not accurate for all students. The study went from 45 to 41 random assignment blocks as a result.

12 Students were randomly assigned to the text-message group or the control group in equal proportion, within blocks defined by grade levels within schools.

A potential threat to the validity of any student-level randomized controlled trial is that students in the control group could actually receive the intervention for some reason, a problem referred to as "crossover." Because New Visions owned the text-messaging system, and because New Visions rather than the schools controlled that system, crossover was nonexistent. It is theoretically possible that there could have been "spillover" — that one student's assignment to the intervention group could have affected another. For example, because the study randomized students regardless of their households, rather than designating a single "focal" student within each household, it is possible that students in the control group could have had guardians who received text messages for siblings in the text message group. Such a scenario theoretically could have made the control group act more like the text-message group. In the analysis sample, however, only 100 students in the control group shared guardians with students in the text-message group.

The analysis plan was prespecified and registered in the spring of 2016 with the What Works Clearinghouse Randomized Controlled Trial Registry, which has subsequently stopped posting plans.

13 The sample did not include foster parents and guardians of homeless students, but did include guardians who were grandparents.

14 There is always some degree of self-selection among those who opt out. Despite some baseline differences between those who remained in the study and those who left or were excluded, one can still draw conclusions about the effect of messaging parents.

The sample can be classified and compared in several ways. Students in the study had a 90 percent average first-semester attendance rate, compared with an 88 percent average first-semester attendance rate among those who opted out before the study began. Students whose

guardians remained in the study had a 91 percent average first-semester attendance rate, compared with an 84 percent average first-semester attendance rate among those whose guardians opted out *during* the study. Although 175 of the students assigned to the intervention group had all of their guardians opt out of receiving text messages after random assignment, these 175 students remained in the analysis sample. Guardians who opted out, however, received text messages only before they opted out. Also, during the study, 61 of 1,976 text-message-group students became inactive (including students who dropped out and those who transferred to other schools). These students also remained in the analysis sample.

15 The analysis did not weight students based on the amount of time they were enrolled because it was important not to underrepresent students who transferred or dropped out. In general, such students are more likely to need attendance support. Moreover, effects on attendance could be confounded with effects on dropping out.

The analysis accounts for different schools and grades having different numbers of students and gives more weight to those school-grade blocks with more students.

16 Estimation of the average intent-to-treat effect accounted for the blocked randomization with indicator variables for each school-grade block. In order to improve the precision of the estimate, baseline measures of student age, gender, and first-semester attendance rate were also included in the estimation model. There were no missing values for baseline measures for those students in the analytic sample.

17 The study also found no effect on the number of days of consecutive absence. Statistical power based on sample size helps determine the smallest effect that can be detected. With 41 randomization blocks and an average (based on the harmonic mean) of 69 students per grade-level block randomly assigned to the intervention with a probability of 50 percent, the estimated minimum detectable effect size with a two-tailed test (with the typical 80 percent power and 0.05 statistical significance level) was 0.017 standard deviations. To express this effect in percentage points or days, the analysis uses the standard deviation of the outcome, which was 0.22 percentage points, to conclude that the study could detect an effect as small as a 0.4 percentage point increase or 0.3

additional days of attendance. The explanatory power of baseline measures and block indicators (R^2) was 0.97.

18 Rogers and Feller (2016a).

19 Rogers and Feller (2016b).

20 Balfanz and Byrnes (2014).

21 At the conclusion of the study, the intervention team sent guardians who remained in the study a single survey question via text message asking them their opinion of the intervention; about one-third responded. The vast majority of those who responded said they liked receiving information by text message, but with such a low response rate one cannot be sure that they represent parents who did not respond. Comparing observed characteristics, respondents' children had somewhat higher first-semester attendance rates than nonrespondents' children (a 95 percent average attendance rate versus 90 percent), and a lower proportion of respondents than nonrespondents spoke a language other than English (23 percent versus 28 percent).

REFERENCES

- Allensworth, Elaine M., and John Q. Easton. 2007. *What Matters for Staying On-Track and Graduating in Chicago Public High Schools: A Close Look at Course Grades, Failures, and Attendance in the Freshman Year*. Chicago: Consortium on Chicago School Research at the University of Chicago.
- Attendance Works. "Sending the Right Message About Attendance to Parents and Students." Website: www.attendanceworks.org/wordpress/wp-content/uploads/2013/04/messaging-attendance-to-families1.pdf. Accessed on October 11, 2016.
- Bruce, Mary, John M. Bridgeland, Joanna Hornig Fox, and Robert Balfanz. 2011. *On Track for Success: The Use of Early Warning Indicator and Intervention Systems to Build a Grad Nation*. Washington, DC: Civic Enterprises.
- Balfanz, Robert, and Vaughan Byrnes. 2014. *A Report on the New York City Mayor's Interagency Task Force on Truancy, Chronic Absenteeism, and School Engagement*. Baltimore: Everyone Graduates Center, Johns Hopkins University.

- Bergman, Peter. 2016. "Parent-Child Information Frictions and Human Capital Investment: Evidence from a Field Experiment." Working paper. New York: Columbia University.
- Bergman, Peter, and Todd Rogers. 2016. "Organizational Policy on Technology Adoption in Education: Evidence from a Field Experiment." Unpublished paper.
- Castleman, Benjamin L., and Lindsay C. Page. 2015. "Summer Nudging: Can Personalized Text Messages and Peer Mentor Outreach Increase College Going Among Low-Income High School Graduates?" *Journal of Economic Behavior and Organization* 115: 144-160.
- Hammond, Betsy. 2014. "Getting Kids to School." In "Empty Desks: Oregon's Absenteeism Epidemic." Website: www.oregonlive.com/absent/chapter-5-side1.html.
- Rogers, Todd, and Avi Feller. 2016a. "Reducing Student Absences at Scale." Unpublished paper.
- Rogers, Todd, and Avi Feller. 2016b. "A Randomized Experiment Using Absenteeism Information to Nudge Attendance." Unpublished paper.
- U.S. Department of Education, Civil Rights Data Collection. "Chronic Absenteeism in the Nation's Schools." Website: www2.ed.gov/datastory/chronicabsenteeism.html. Accessed on October 7, 2016.
- York, Benjamin N., and Susanna Loeb. 2014. "One Step at a Time: The Effects of an Early Literacy Text Messaging Program for Parents of Preschoolers." National Bureau of Economic Research Working Paper No. 20659. Cambridge, MA: National Bureau of Economic Research.

ACKNOWLEDGMENTS

Funding for this paper was provided by the Laura and John Arnold Foundation, the Edna McConnell Clark Foundation, the Charles and Lynn Schusterman Foundation, the JPB Foundation, the Kresge Foundation, the Ford Foundation, and the Joyce Foundation. Sara Staszak and Nicholas Commins provided excellent research assistance. Fred Doolittle, Susan Sepanik and Joshua Malbin provided invaluable guidance on this brief. MDRC thanks New Visions for Public Schools and the schools participating in the study for their partnership in this project.

Dissemination of MDRC publications is supported by the following funders

that help finance MDRC's public policy outreach and expanding efforts to communicate the results and implications of our work to policymakers, practitioners, and others: The Annie E. Casey Foundation, Charles and Lynn Schusterman Family Foundation, The Edna McConnell Clark Foundation, Ford Foundation, The George Gund Foundation, Daniel and Corinne Goldman, The Harry and Jeanette Weinberg Foundation, Inc., The JBP Foundation, The Joyce Foundation, The Kresge Foundation, Laura and John Arnold Foundation, Sandler Foundation, and The Starr Foundation.

In addition, earnings from the MDRC Endowment help sustain our dissemination efforts. Contributors to the MDRC Endowment include Alcoa Foundation, The Ambrose

Monell Foundation, Anheuser-Busch Foundation, Bristol-Myers Squibb Foundation, Charles Stewart Mott Foundation, Ford Foundation, The George Gund Foundation, The Grable Foundation, The Elizabeth and Frank Newman Charitable Foundation, The New York Times Company Foundation, Jan Nicholson, Paul H. O'Neill Charitable Foundation, John S. Reed, Sandler Foundation, and The Stupski Family Fund, as well as other individual contributors.

The findings and conclusions in this report do not necessarily represent the official positions or policies of the funders.

For information about MDRC and copies of our publications, see our website: www.mdrc.org.