IES Institute of Education Sciences

APPENDIXES
September 2021

Regional Educational Laboratory Northeast
At Education Development Center

Exploring Implementation of Attendance Supports to Reduce Chronic Absenteeism in the Providence Public School District

See https://go.usa.gov/xFzZw for the full report.

Appendix A. About the study

As more research emerges about the effects of chronic absenteeism on student achievement, schools across the United States are increasingly paying attention to their students' attendance rates. The U.S. Department of Education (2016) has identified chronic absenteeism as a hidden education crisis: more than 16 percent of students across the United States were chronically absent in the 2015/16 school year. Chronic absenteeism is not an isolated issue: in the 2015/16 school year about 800 districts across the nation reported that 30 percent of their students were absent for more than three weeks (U.S. Department of Education, 2016). These absences are most prevalent in the first years of formal schooling (prekindergarten and kindergarten) and in high school, and they disproportionately affect students from low-income backgrounds (Balfanz & Byrnes, 2012; Chang & Romero, 2008).

Research points to several key trends in chronic absenteeism rates across grades, socioeconomic status, race/ethnicity, English learner status, and disability status. Nationally, there are consistent patterns in chronic absenteeism rates by grade level: they are high in prekindergarten and kindergarten, are at their lowest in grades 3 and 4, begin to steadily increase in middle and high school grades, and peak in grade 12 (Attendance Works, 2016; Balfanz & Byrnes, 2012; Gottfried, 2017). National estimates suggest that nearly 1 in 10 kindergarten students misses a month of school every year (Chang & Romero, 2008). A 2017 report revealed similar patterns in the Providence Public School District (PPSD), with 61 percent of grade 12 students chronically absent in the 2016/17 school year (Cigna, 2017).

With regard to socioeconomic status, research has consistently shown that schools with high populations of students from low-income families exhibit higher chronic absenteeism rates than schools with lower populations of students from low-income families (Balfanz & Byrnes, 2012; Cigna, 2017; Ehlrich et al., 2014). Further, students of color exhibit higher chronic absenteeism rates than White students (Balfanz & Byrnes, 2012; Ehlrich et al., 2014; Rice, 2015). During the 2016/17 school year Native American and multiracial students in PPSD had the highest absenteeism rates (56 percent and 44 percent) followed by White students (40 percent), Hispanic students (39 percent), and Black students (32 percent; Cigna, 2017).

Nationally, English learner students exhibit slightly lower chronic absenteeism rates (14 percent) than non–English learner students (16 percent; U.S. Department of Education, 2016).

Students with disabilities are also more likely to be chronically absent than their peers without disabilities (Attendance Works, 2016). A recent study on New York City public schools showed similar trends but noted that students with disabilities in classrooms in which the majority of students did not have disabilities had lower chronic absenteeism rates (Gottfried et al., 2019).

Although it is important to acknowledge the research documenting patterns in chronic absenteeism rates according to these characteristics, it is equally important to acknowledge that these factors do not cause chronic absenteeism. Instead, these characteristics tend to be correlated with numerous systemic barriers faced by students and families, both in and out of schools, that might impact student attendance (Nauer et al., 2014).

Chronic absenteeism is associated with a host of adverse student academic outcomes, including lower math and reading achievement, lower education engagement, and lower social engagement (Gottfried, 2014). Chronic absenteeism is associated with lower reading scores (Ehrlich et al., 2014), and students who are not reading proficiently by grade 3 are four times more likely to drop out (Hernandez, 2012). The pattern of chronic absenteeism often starts early in the school year: a student who is absent for several days in September is more likely to be chronically absent for the year (Hernandez, 2012; Olson, 2014). The negative outcomes associated with absenteeism also start in the early years of schooling—as early as grade 1—and student attendance is an indicator of the likelihood of graduating (Schoeneberger, 2011).

Although absenteeism rates decrease in the middle grades, they rise in high school (Balfanz, 2016). Several studies have underscored the importance of attendance in grade 9 (Allensworth & Easton, 2007; Allensworth et al., 2014; McCallumore & Sparapani, 2010; Neild et al., 2007). Neild et al. (2007) found that students in grade 9 who missed at least 30 percent of school days had a 75 percent chance of dropping out. Grade 9 attendance is a better predictor of student achievement than past test scores. Students in grade 9 with high test scores in grade 8 who missed more than two weeks of school per semester were more likely to fail a class than their peers with lower test scores but higher attendance (Allensworth & Easton, 2007). Furthermore, high school students who miss less than one week of school in a year have a higher probability of earning As and Bs than peers with lower attendance (Allensworth & Evans, 2016).

Several studies have examined the reasons for students' being chronically absent from school. In prekindergarten and kindergarten, students are often absent because of illness or because they face challenges in getting to school (Ehlrich et al., 2014; Gottfried, 2017). Providing bus service to students in early grades has shown promise in reducing absences (Gottfried & Kirskey, 2017). Students in early grades whose families lack access to health care also have higher absenteeism rates, with racial/ethnic minority students disproportionally represented among this group. Parent and guardian beliefs about the value of school during the early years also play a role in how frequently students are absent (Ehlrich et al., 2014).

The reasons for chronic absenteeism differ in higher grades. When students make the transition to high school, they become more responsible for their attendance and are more likely to skip school. Rosenkranz et al. (2014) reported that unexcused absences in Chicago Public Schools quadrupled from grade 8 to grade 9. When grade 9 students miss class and fall behind academically, absences increase in subsequent grades, and students become more likely to drop out (Neild et al., 2007).

The increased interest in reducing chronic absenteeism is evidenced in states' Every Student Succeeds Act (ESSA) plans. As of September 2017, 37 states had identified chronic absenteeism as a School Quality and Student Success indicator in their respective ESSA plan (Jordan & Miller, 2017). The growing concern over chronic absenteeism has led to better systems of data collection being viewed as a starting point for developing effective strategies to address the challenge (Hutt, 2018). Several states have in turn employed strategies to reduce chronic absenteeism; these strategies are generally built on a three-tiered Response to Intervention model (Attendance Works, 2018; Kearney & Graczyk, 2014). Tier 1 represents universal strategies, including increasing data capacity and effective communication with parents; Tier 2 provides targeted strategies, such as student mentoring

programs that are personalized to individual students; and Tier 3 offers intensive strategies for the most chronically absent students and tend to be costlier because they involve social workers and the legal system (Bauer et al., 2018).

Recent Tier 1 programs—such as sending text messages or mailing reminders—aimed at increasing parent engagement have demonstrated positive effects in reducing chronic absenteeism across many urban areas, including New York City, Philadelphia, and Pittsburgh (Robinson et al., 2017; Rogers & Feller, 2018; Smythe-Leistico & Page, 2018; Sommer et al., 2017). Past research also supports school partnerships with community organizations or agencies to provide additional resources that address systemic causes of absenteeism, such as homelessness or lack of transportation (Attendance Works, 2016; Balfanz & Byrnes, 2013). Other programs that pair students and their families with mentors to monitor and improve family–school relationships have also reduced chronic absenteeism (Balfanz & Byrnes, 2013; Guryan et al., 2017; Maynard et al., 2014). Strategies such as hiring a full-time nurse (Allen, 2003; Wyman, 2005) and increasing access to school buses (Gottfried & Kirksey, 2017) can also mitigate absenteeism issues related to health and poverty. In addition, when implemented effectively, school-based attendance teams can be part of the formula for high attendance rates and positive school climate (Durham & Connolly, 2017).

However, limited research has examined the influence of using multiple programs—for example, in a school that has both mentoring and a text-messaging platform—on chronic absenteeism. Sheldon and Epstein's (2004) study of a sample of schools that employed up to 14 attendance-related activities concluded that chronic absenteeism decreased in schools that conducted more attendance-related activities but that the effectiveness of individual strategies was unclear. Robinson et al. (2017) showed that simply notifying parents of absences was insufficient; schools experienced more success when they combined that effort with targeting parent beliefs and misconceptions about attendance. Existing research suggests that a layered approach might improve student outcomes. However, more understanding is needed about how different attendance strategies reinforce one another and how schools manage and prioritize these strategies. This study is a first step toward better understanding the relationship between multiple attendance-related strategies and chronic absenteeism.

References

Allen, G. (2003). The impact of elementary school nurses on student attendance. *Journal of School Nursing, 19*(4), 2253–2231.

Allensworth, E. M., & Easton, J. Q. (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.* University of Chicago Consortium on Chicago School Research. https://consortium.uchicago.edu/sites/default/files/2018-10/07%20What%20Matters%20Final.pdf.

Allensworth, E., & Evans, S. (2016). Tackling absenteeism in Chicago. *Phi Delta Kappan*, *98*(2), 16–21.

Allensworth, E. M., Gwynne, J. A., Moore, P., & de la Torre, M. (2014). *Looking forward to high school and college: Middle grade indicators of readiness in Chicago Public Schools*. University of Chicago Consortium on Chicago School Research. https://consortium.uchicago.edu/sites/default/files/2018-10/Middle%20Grades%20Report.pdf.

Attendance Works. (2016). *Portraits of change: Aligning school and community resources to reduce chronic absenteeism*. Johns Hopkins University, Center for Social Organization of Schools. Retrieved October 14, 2020, from https://www.attendanceworks.org/portraits-of-change/.

Attendance Works. (2018). *3 tiers of intervention.* Retrieved March 2, 2019, from https://www.attendanceworks.org/chronic-absence/addressing-chronic-absence/3-tiers-of-intervention/.

Balfanz, R. (2016). Missing school matters. *Phi Delta Kappan*, *98*(2), 8–13.

Balfanz, R., & Byrnes, V. (2012). *The importance of being in school: A report on absenteeism in the nation's public schools.* Johns Hopkins University, Center for Social Organization of Schools. Retrieved September 30, 2019, from https://www.attendanceworks.org/importance-school-report-absenteeism-nations-public-schools/.

Balfanz, R., & Brynes, V. (2013). *Meeting the challenge of combating chronic absenteeism: Impact of the NYC mayor's interagency task force on chronic absenteeism and school attendance and its implications for other* cities. Johns Hopkins University, Center for Social Organization of Schools, Everyone Graduates Center.

Bauer, L., Liu, P., Schanzenbach, D. W., & Shambaugh, J. (2018). *Reducing chronic absenteeism under the Every Student Succeeds Act*. The Brookings Institution.

Chang, H. N., & Romero, M. (2008). *Present, engaged, and accounted for: The critical importance of addressing chronic absenteeism in the early grades.* National Center for Children in Poverty. Retrieved March 2, 2019, from http://www.nccp.org/publications/pub_837.html.

Cigna, J. (2017). *Chronic absenteeism in Providence public schools.* Providence Public School District, Office of Research, Planning and Accountability. http://providencerules.com/docs/SY16-17_Chronic_Absenteeism_Data_Brief.pdf.

Durham, R. E., & Connolly, F. (2017). *Strategies for student attendance and school climate in Baltimore's community schools.* Baltimore Education Research Consortium. https://eric.ed.gov/?id=ED578884.

Ehrlich, S., Gwynne, J., Pareja, A., & Allensworth, E. (2014). *Preschool attendance in Chicago public schools: Relationship with learning outcomes and reasons for absences: Research summary.* University of Chicago Consortium on Chicago School Research.

Gottfried, M. A. (2014). Chronic absenteeism and its effects on students' academic and socioemotional outcomes. *Journal of Education for Students Placed at Risk*, *19*(2), 53–75. https://eric.ed.gov/?id=EJ1045001.

Gottfried, M. A. (2017). Linking getting to school with going to school. *Educational Evaluation and Policy Analysis*, *39*(4), 571–592.

Gottfried, M. A., & Kirksey, J. J. (2017). "When" students miss school: The role of timing of absenteeism on students' test performance. *Educational Researcher, 46*(3), 119–130.

Gottfried, M. A., Stiefel, L., Schwartz, A. E., & Hopkins, B. (2019). Showing up: Disparities in chronic absenteeism between students with and without disabilities in traditional public schools. *Teachers College Record*, *121*(8), 1–34. Retrieved September 30, 2019, from https://www.tcrecord.org/Content.asp?ContentId=22755.

Guryan, J., Christenson, S., Claessens, A., Engel, M., Lai, I., Ludwig, Turner, A. C., & Turner, M. C. (2017, February). *The effect of mentoring on school attendance and academic outcomes: A randomized evaluation of the Check & Connect program* (Working Paper No. 16–18). Institute for Policy Research.

Hernandez, D. A. (2012). *Double jeopardy: How third-grade reading skills and poverty influence high school graduation.* Annie E. Casey Foundation. https://eric.ed.gov/?id=ED518818.

Hutt, E. (2018). Measuring missed school: The historical precedents for the measurement and use of attendance records to evaluate schools. *Journal of Education for Students Placed at Risk (JESPAR)*, *23*(1–2), 5–8.

Jordan, P., & Miller, R. (2017). *Who's in: Chronic absenteeism under the Every Student Succeeds Act.* FutureEd, Georgetown University. https://www.future-ed.org/wp-content/uploads/2017/09/REPORT_Chronic_Absenteeism_final_v5.pdf.

Kearney, C. A., & Graczyk, P. (2014). A Response to Intervention model to promote school attendance and decrease school absenteeism. *Child Youth Care Forum, 43*(1), 1–25.

Maynard, B., Kjellstrand, E., & Thompson, A. (2014). Effects of Check and Connect on attendance, behavior, and academics: A randomized effectiveness trial. *Research on Social Work Practice, 24*(3), 296–309.

McCallumore, K. M., & Sparapani, E. F. (2010). The importance of the ninth grade on high school graduation rates and student success in high school. *Education Digest*, *76*(2), 60–64.

Nauer, K., Mader, N., Robinson, G., & Jacobs, T. (2014). *A better picture of poverty: What chronic absenteeism and risk load reveal about NYC's lowest income elementary schools*. Center for New York City Affairs.

Neild, R. C., Balfanz, R., & Herzog, L. (2007). An early warning system. *Educational Leadership*, *65*(2), 28–33.

Olson, L. S. (2014). *Why September matters: Improving student attendance.* Baltimore Education Research Consortium. https://eric.ed.gov/?id=ED553161.

Rice, C. (2015). *Showing up matters: The state of chronic absenteeism in New Jersey.* Advocates for Children of New Jersey. https://eric.ed.gov/?id=ED582323.

Robinson, C., Lee, M., Dearing, E., & Rogers, T. (2017, March). *Reducing student absenteeism in the early grades by targeting parental beliefs* (Faculty Research Working Paper No. RWP17-011). Harvard Kennedy School.

Rogers, T., & Feller, A. (2018). Reducing student absences at scale by targeting parents' misbeliefs. *Nature Human Behavior, 2*(5)*,* 335–342.

Rosenkranz, T., de la Torre, M., Stevens, W. D., & Allensworth, E. M. (2014). *Free to fail or on-track to college: Why grades drop when students enter high school and what adults can do about it.* University of Chicago Consortium on Chicago School Research. https://consortium.uchicago.edu/sites/default/files/2018-10/FoF%20Why%20Grades%20Drop.pdf.

Schoeneberger, J. A. (2011). Longitudinal attendance patterns: Developing high school dropouts. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas*, *85*(1), 7–14. https://eric.ed.gov/?id=EJ951297.

Sheldon, S. B., & Epstein, J. L. (2004). Getting students to school: Using family and community involvement to reduce chronic absenteeism. *School Community Journal*, *14*(2), 39–56.

Smythe-Leistico, K., & Page, L. (2018). Connect-Text: Leveraging text-message communication to mitigate chronic absenteeism and improve parental engagement in the earliest years of schooling. *Journal of Education for Students Placed at Risk, 23*(1–2), 139–152.

Sommer, T., Sabol, T., Chase-Lansdale, P., Small, M., Wilde, H., Brown, S., & Huang, Z. (2017). Promoting parents' social capital to increase children's attendance in Head Start: Evidence from an experimental intervention. *Journal of Research on Educational Effectiveness, 10*(4), 732–766.

U.S. Department of Education. (2016). *Chronic absenteeism in the nation's schools*. Retrieved March 2, 2019, from https://www2.ed.gov/datastory/chronicabsenteeism.html.

Wyman, L. L. (2005). Comparing the number of ill or injured students who are released early from school by school nursing and nonnursing personnel. *Journal of School Nursing, 21*(6), 350–355.

Appendix B. Methods

This appendix provides additional information about the data, sample, and methods.

Data

This study used several types of existing data that were obtained from the Providence Public School District (PPSD). PPSD provided data from school administrator reports on the implementation of each type of school-based attendance support. Those data, based on interviews with school administrators, were coded according to a set of fidelity metrics to assess whether each type of attendance support was implemented with low, moderate, or high fidelity. PPSD also provided an administrative records file for PPSD schools containing aggregated school-level annual and monthly chronic absenteeism rates and average daily attendance rates. The administrative records file also included school-level student demographic characteristics, including percentages of students by eligibility for the National School Lunch Program, race/ethnicity, Individualized Education Program status, and multilingual learner student status. The file included an indicator for whether the school was an elementary, a middle, or a high school. PPSD also provided a data file exported from its text-messaging platform that contained the timing and content of every text message that schools sent to families. The study team used a set of screening criteria developed in partnership with PPSD to process these data to identify messages that were attendance related. Table B1 provides a list of key data elements and descriptions.

Table B1. List of key data elements and descriptions

Data element	Description
Student absenteeism	
School chronic absenteeism rate by month	School-level data recording the monthly absenteeism rate in each school for the 2016/17, 2017/18, and 2018/19 school years
School level demographic variables	
Eligibility for the National School Lunch Program	A continuous variable representing the percentage of students eligible for the National School Lunch Program (a proxy for socioeconomic status)
Race/ethnicity	A continuous variable representing the percentage of students by race/ethnicity
Multilingual learner	A continuous variable representing the percentage of students receiving English learner services
Individualized Education Program	A continuous variable representing the percentage of students who have an Individualized Education Program
Grade level	Elementary (grades K–5) or secondary schools (grades 6–12), the latter of which includes both middle and high schools
School-level implementation of attendance supports	
School-based attendance team implementation	A categorical indicator representing the fidelity of implementation of school-based attendance teams
Mentorship programs implementation	A categorical indicator representing the fidelity of implementation for check-in mentorship programs
Parent engagement specialist implementation	A dichotomous indicator representing whether a school was assigned a parent engagement specialist. Fidelity of implementation was assumed to be high if a specialist was assigned.
Nudge/attendance letter implementation	A categorical indicator representing the fidelity of implementation of nudge/attendance letters
Phone calls	A categorical indicator representing the fidelity of implementation of phone calls home
Leveraged partnerships implementation	A categorical indicator representing the fidelity of implementation of leveraged partnerships
Text messaging	A categorical indicator representing the fidelity of implementation of text messaging
Overall quantity of school-based attendance supports implemented	A continuous indicator representing the number of attendance supports implemented by schools
School-level text-messaging measures	
Attendance-related text messages per month per student	A continuous measure representing the number of attendance-related text messages per month per student
Proportion of attendance-related text messages among all text messages	A continuous measure representing the number of attendance-related text messages divided by the school's total number of text messages to calculate the proportion of text messages that were attendance related
Proportion of blast text messages	A continuous measure representing the number of text messages that were sent to at least 80 percent of the school's student population divided by the total number of text messages sent
Proportion of targeted text messages	A continuous measure representing the number of text messages that were sent to less than 80 percent of the school's student population divided by the total number of text messages sent
Percentage of attendance-related text messages sent in a language other than English	A continuous measure of the number of attendance-related text messages sent by schools in a language other than English divided by the total number of text messages sent in all languages

Source: Authors' creation based on data from the Providence Public School District.

Sample

The study sample included 39 PPSD schools—22 elementary schools and 17 secondary schools (7 middle schools and 10 high schools)—and their student populations during the 2017/18 and 2018/19 school years. Elementary and secondary schools were similar in many demographic characteristics (table B2). However, secondary schools had a larger average student population, a higher percentage of Black educators, and a higher percentage of experienced teachers than elementary schools. Secondary schools had higher average chronic absenteeism rates than elementary schools for the 2016/17 and 2017/18 school years, before the study period (figure B1).

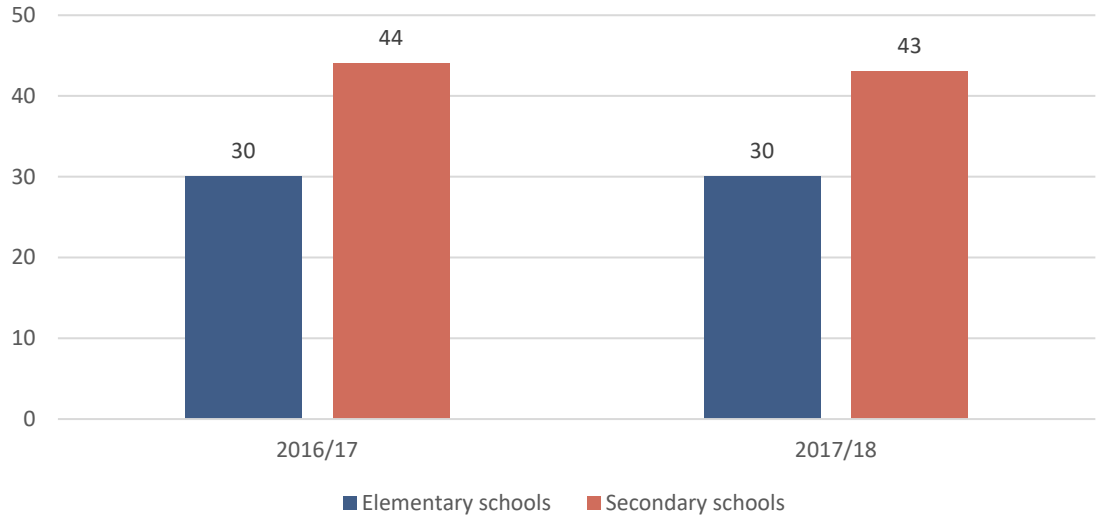
Table B2. School-level demographic characteristics by grade level, 2017/18 and 2018/19

	Elementary schools (*n* = 22)		Secondary schools (*n* = 17)		Overall (*n* = 39)	
Characteristic	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Percentage of Hispanic students	64.0	13.1	67.2	7.8	65.4	11.1
Percentage of Black students	15.9	7.3	16.1	3.8	16.0	6.0
Percentage of White students	9.5	7.4	7.7	5.5	8.7	6.7
Percentage of Asian students	4.3	2.2	4.2	2.3	4.3	2.2
Percentage of multiracial students	5.0	2.2	3.8	1.1	4.5	1.9
Percentage of students eligible for the National School Lunch Program	85.5	8.4	82.6	7.6	84.2	8.1
Percentage of students have Individualized Education Program	16.2	7.6	13.7	4.4	15.1	6.4
Percentage of students in special education	15.7	7.3	13.0	4.3	14.5	6.2
Percentage of students are multilingual learners	33.0	12.2	28.8	11.9	31.2	12.1
Percentage of Black educators†[a]	4.5	2.7	8.5[b]	4.3	6.2	3.9
Percentage of White educators[a]	81.0	10.5	71.5[b]	7.1	77.0	10.3
Percentage of Asian educators[a]	1.8	1.8	2.5[b]	1.9	2.1	2.5
Percentage of multiracial educators[a]	0.01	0.01	0.01[b]	0.02	0.01	0.01
Percentage of educators missing race/ethnicity[a]	11.4	10.7	15.4[b]	4.2	13.1	8.8
Number of students†	474	137	735	295	584	251
Teachers' chronic absenteeism rate	4.9	5.3	5.8	3.9	5.3	4.7
Percentage of experienced teachers†	12.7	4.6	27.4	17.9	18.9	14.0

† The difference in means between elementary and secondary schools was greater than the standard deviation for all schools.
Note: School-level demographic data are averages for the 2017/18 and 2018/19 school years.
a. The denominator used in these calculations was the total number of educators in each school.
b. *n* = 16 schools for these values.
Source: Authors' analysis of school-level data from the Providence Public School District, 2017/18 and 2018/19.

Figure B1. Secondary schools had higher average chronic absenteeism rates than elementary schools, 2016/17 and 2017/18

Average chronic absenteeism rate (percent)



Source: Authors' analysis of chronic absenteeism rates data from the Providence Public School District, 2016/17 and 2017/18.

School-based attendance support data. During summer 2019 staff from the PPSD Office of Research, Planning and Accountability conducted interviews with leaders from all 39 schools in the analytic sample. The purpose of these interviews was to gather data on schools' implementation of attendance supports. During the interviews school leaders were asked whether they implemented each support and to describe its use. District staff coded interview transcripts to create a fidelity of implementation rating for each type of attendance support. The ratings were created using an a priori set of indicators for fidelity of implementation. The indicators were created for each level of fidelity of implementation (low, moderate, and high) and consisted of detailed statements on how the attendance support was used (table B3). PPSD provided both the binary indicators[1] of whether schools reported implementation of each type of attendance support and the fidelity of implementation ratings. The fidelity of implementation variable provided a more nuanced look at schools' use of attendance supports (figure B2).

[1] A fidelity of implementation rating was not available for the parent engagement specialist support. For the 2018/19 school year parent engagement specialists were placed in 5 of the district's 22 elementary schools and 1 middle school (study team communication with PPSD, 2020). Through direct outreach parent engagement specialists coordinate student services, advocate for families, lead parent workshops, and connect parents with school staff. For the purpose of analysis, the school was assumed to have high fidelity of implementation of the parent engagement specialist if one was assigned.

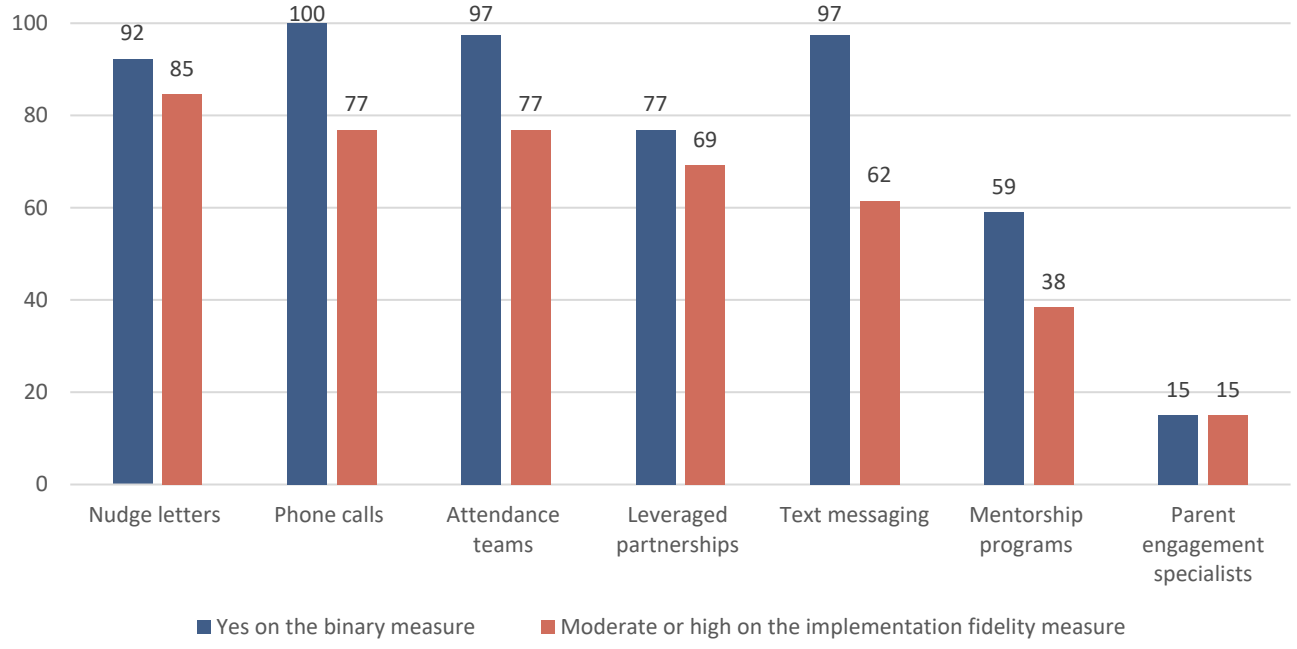
Table B3. Implementation fidelity descriptions for attendance supports, 2018/19

	Implementation criteria		
Attendance support	Low	Moderate	High
Attendance team	Lack of data use; no regular meeting schedule; no procedures, roles, or responsibilities	Data used to inform decisions but with no clear strategy; meetings occur on a monthly or bimonthly basis with a somewhat diverse stakeholder team; procedures, roles, and responsibilities not always consistent with the Student Attendance Policy	Strategic and consistent data use; weekly meetings with a diverse stakeholder team; procedures, roles, and responsibilities aligned with the Student Attendance Policy
Mentorship programs	No formal mentorship program or regular check-ins with students	Program in first year of implementation; some students assigned to a caring adult; check-ins are on an informal basis	Formal program in place for more than a year; consistent process for identifying and assigning students to mentors; regular check-ins and follow-ups
Nudge/attendance letter	Letters not used, or sent in untimely fashion; used only as an accountability tool	Letters sent using district template; some follow-up actions taken; procedures not always consistent with the Student Attendance Policy	Personalized letters sent in a timely manner; other modes of communication used for follow-up; procedures consistent with the Student Attendance Policy
Phone calls	Accurate parent or guardian contact information not obtained; phone calls made in untimely fashion; reliance on automated phone call system	Efforts made to obtain accurate contact information; procedures and tracking system inconsistent and not always aligned with the Student Attendance Policy	All efforts made to obtain accurate contact information; clear procedures and tracking system in place and aligned with the Student Attendance Policy; wide range of staff members make calls
Leveraged partnerships	No external partners leveraged for attendance purposes	Partnerships exist but strategy and purpose are not clear to all members of school community	Partnerships are integrated with school strategy and well known by staff; partners involved in attendance teams and decisionmaking processes
Text-messaging platform	Text messaging not used in a positive way or for attendance-related purposes; use of platform limited to administrators	Limited use of targeted messaging; some use of platform by nonadministrative staff; data from platform sometimes used	Consistent strategy for both targeted and mass messaging; all staff trained on messaging platform; data from platform used alongside other attendance data

Note: The descriptions of implementation fidelity are summarized from a list of indicators created by the Providence Public School District for each attendance support. Implementation fidelity indicators were not created for parent engagement specialists; therefore, the study team categorized the presence of parent engagement specialists as moderate or high implementation. For the purpose of analysis, the school was assumed to have high fidelity of implementation for the parent engagement specialist if one was assigned.
Source: Authors' summary of the implementation criteria created by the Providence Public School District.

Figure B2. Measuring moderate or high fidelity of implementation of attendance supports yielded more variation than measuring whether supports were being implemented, 2018/19

*Percent of schools implementing each support (*n *= 39 schools)*



Source: Authors' analysis of attendance support data from the Providence Public School District, 2018/19.

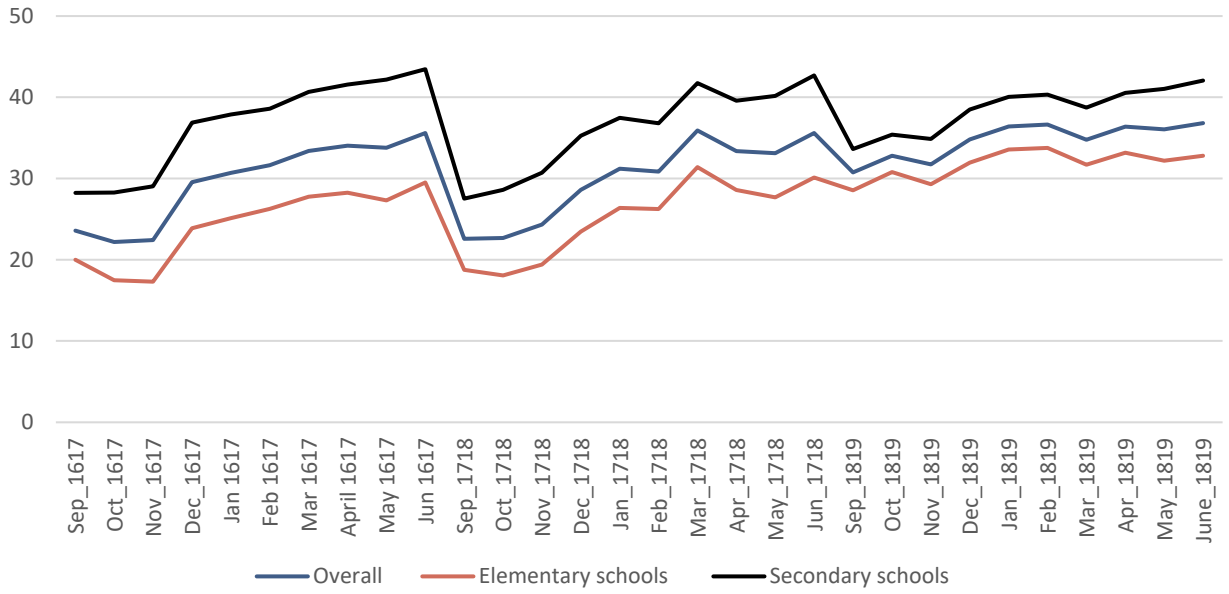
Additional figures showing how the implementation of attendance supports varied by schools are in appendix C.

School-level attendance data. PPSD provided chronic absenteeism data for each month of the 2016/17, 2017/18, and 2018/19 school years. Data were visualized for the 39 schools in the analytic sample and for elementary and secondary schools separately (figure B3). Visualizations show that increases and decreases in chronic absenteeism by month were similar for elementary and secondary schools. Consistent with other research, secondary schools had higher chronic absenteeism rates than elementary schools (Attendance Works, 2016; Balfanz & Byrnes, 2012; Gottfried, 2017).

At the beginning of the 2018/19 school year, PPSD reported several contextual factors that likely affected chronic absenteeism in the district. A school bus strike and a teacher union negotiation occurred in September 2018. District leaders expected that these factors affected chronic absenteeism at the beginning of that school year and the annual rates for the 2018/19 school year, with the influence affecting elementary schools more than secondary schools (study team communication with PPSD, 2020). Overall, annual chronic absenteeism rates increased between the 2016/17 and 2018/19 school years (by 3 percentage points) for elementary schools and decreased slightly (by 1 percentage point) for secondary schools (see figure B3).

Figure B3. Secondary schools recorded higher chronic absenteeism rates than elementary schools, 2016/17–2018/19

Chronic absenteeism rate (percent)



Note: The sample size is 39 for overall schools, 22 for elementary schools, and 17 for secondary schools. For descriptive analyses, schools were separated into elementary and secondary school grade-level categories. Medium and high chronic absenteeism schools had a slightly higher percentage of Hispanic students (67 percent and 66 percent respectively) than low (64 percent) chronic absenteeism schools. Otherwise, schools were similar in their demographic characteristics (see table B4).

Source: Authors' analysis of school absenteeism data from the Providence Public School District, 2016/17–2018/19.

Table B4. School-level characteristics by chronic absenteeism category, 2018/19

Characteristic	Low chronic absenteeism schools (*n* = 11)		Medium chronic absenteeism schools (*n* = 15)		High chronic absenteeism schools (*n* = 13)	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Number of schools						
Elementary	8		10		4	
Middle	2		4		1	
High	1		1		8	
Percentage of White students	12.1	10.9	7.1	2.5	7.0	4.1
Percentage of Black students	13.9	7.0	16.8	6.7	16.1	3.2
Percentage of Hispanic students	63.6	17.5	66.5	8.4	67.1	7.2
Percentage of Asian students	4.8	2.6	4.0	2.3	3.7	1.4
Percentage of students who have an Individualized Education Program	14.5	7.2	14.7	5.3	17.1	7.6
Percentage of students in special education	14.3	7.2	14.3	5.4	15.6	7.1
Percentage of students eligible for the National School Lunch Program	81.3	13.3	86.9	4.0	82.3	5.9
Percentage of multilingual learner students	30.2	15.1	34.4	11.3	33.5	11.3
Average number of attendance supports implemented with moderate or high fidelity	3.8	1.6	4.7	1.0	4.0	1.7
Percentage of Black educators[a]	5.0	1.9	5.9	3.4	7.0	4.8
Percentage of White educators[a]	78.6	12.8	80.0	6.6	71.1	9.8
Percentage of Asian educators[a]	0.7	1.9	2.7	3.1	2.8	1.6
Percentage of multiracial educators[a]	1.1	1.6	0.8	1.8	0.9	1.2
Percentage of educators missing race/ethnicity[a]	14.0	13.4	9.9	4.2	16.4	5.8
Number of students	501	267	627	163	615	324
Teachers' chronic absenteeism rate (percent)	6.0	6.7	5.4	3.5	4.5	3.9
Percentage of experienced teachers	10.8	4.4	20.3	10.4	25.8	20.3
2016/17 chronic absenteeism rate (percent)	23.8	4.0	34.2	2.4	49.1	9.3
2017/18 chronic absenteeism rate (percent)	23.2	3.1	34.5	2.6	49.3	7.4
2018/19 chronic absenteeism rate (percent)	25.6	4.2	36.2	3.6	48.8	7.4

Note: Schools with low chronic absenteeism rates were those in which less than 30 percent of students were chronically absent, schools with medium rates were those in which 30–40 percent of students were chronically absent, and schools with high rates were those in which more than 40 percent of students were chronically absent. Educator demographic data were available for only 11 high chronic absenteeism schools.

a. The denominator in these calculations was the total number of educators in each school.

Source: Authors' analysis of chronic absenteeism and demographic data from the Providence Public School District, 2016/17–2018/19.

Text-messaging data. The original text-messaging data file was a message-level file containing all the messages that PPSD school staff sent to families from May 2018 to January 2020. The original file contained 1,580,802 text messages from 41 schools. Four schools and all their associated messages were dropped from the analysis because they were either charter schools or programs within other buildings that did not represent distinct education institutions. This reduced the sample to 1,575,610 text messages. Because not all schools had access to the text-messaging platform until September 2018, the analytic dataset was further limited to include only the 2018/19 school year (September to May). This resulted in a final analytic dataset of 736,427 text messages sent from schools to parents and guardians.

The study team then used two methods to identify attendance-related text messages. First, the team employed a command that looked for specific words within a "string" or text variable to flag messages that were attendance related. The keywords and phrases used to flag attendance-related text messages were *absent*, *absence*, *missed*, *[0–9] days*, *missed [0–9]*, and *attend school*. A random selection of the messages identified by each keyword was reviewed to ensure that the keywords accurately identified messages that were attendance related. Second, the team used the same command to scan the dataset's "recipients" variable, which describes the group of students whose families received the message. Recipient groups included "all," which described a blast message to the whole school; "direct," which described a message sent directly to one student's family; and a range of subgroups, such as "10th grade," "course," and attendance-related groups such as "10 tardy+." The recipient variable was scanned for groups using the keywords *attend*, *chronic*, and *tardy*. Messages sent to groups with these words in the name were also flagged as attendance related.

The message-level dataset was also used to analyze language use in attendance-related text messages and overall. The prevalence of text messages in languages other than English was calculated by generating a dummy variable indicating whether a text message was sent in a language other than English, and then summarizing the prevalence of text messages in languages other than English relative to all messages by school. This calculation was made for attendance-related text messages, non-attendance-related text messages, and all text messages.

The message-level file was consolidated into two additional analytic files: a messaging event–level file and a school-level file. The event-level file contained data on 35,276 messaging events. It was used to understand whether schools used text messaging to send "targeted" messages to particular students or groups of students or whether they more often sent "blast" messages to the whole student body. Each row in the messaging event–level file represented a messaging event, irrespective of the number of students included in that event. For instance, a text message sent to the whole student body about the following day's community event and a single text message sent to one parent about a missing assignment both represented one observation. Individual text messages were grouped into events if they had the same school ID, date, time, and first 15 characters of the message. The time variable was rounded to the nearest 10 minutes, as some batches of messages (or group of messages sent as part of a single messaging event) were so large that they took several minutes to send. Identifying text message events based on the first 15 characters instead of the full message text accounted for the fact that many blast messages were slightly personalized (for example: "Greetings, this is a message from Gladys' school…"). Once the team grouped text message events, it counted the number of messages in the batch and assigned a message event ID. The message-level file was then collapsed by message event ID. The number of text messages in each event was divided by the school's enrollment to calculate the proportion of the student body that received a text message event. Text message events sent to more than 80 percent of the student body were flagged as "blasts," and text message events sent to up to 80 percent of students in the school were flagged as "targeted." Subsequent analyses interrogated the proportion of all text messages and of attendance-related text messages that were targeted.

The school-level file included information on schools' monthly use of text messaging. This dataset was assembled by collapsing the message-level file by school and month. The total number of text messages and the number of attendance-related text messages were both counted by school and by month. For each month the number of

text messages and the number of attendance-related text messages were divided by the number of students enrolled to calculate the number of text messages per month per student and the number of attendance-related text messages per month per student. These values were averaged for the months in the 2018/19 school year—the only complete school year for which all schools in the dataset had access to the text-messaging platform—to calculate an average number of monthly text messages per student for attendance-related text messages and for text messages overall. The average number of monthly text messages per student and the average number of monthly attendance-related text messages were used to sort schools into three equal groups: low use, moderate use, and high use. These groupings were established both for attendance-related text messaging and for text messaging overall. Most analyses presented in this report group schools by attendance-related text-messaging use. Additional information categorized by overall use groups is in appendix C.

Methods

The study team calculated frequencies, percentages, difference scores, and means as appropriate. Descriptive statistics on the use of attendance supports, text messaging, and chronic absenteeism rates were calculated for elementary and secondary schools separately, as it was expected that they would have different strategies and differences in chronic absenteeism patterns and rates. To examine the use of supports by chronic absenteeism rate in 2018/19, the study team sorted schools into three categories: below 30 percent (low), 30–40 percent (medium), and above 40 percent (high). These groupings were established separately for elementary and secondary schools and were used to compare schools' implementation of different attendance supports and their use of the text-messaging platform. To present a synthesis indicating which attendance supports were being used by schools in which chronic absenteeism decreased, the study team calculated the difference in rates between the 2017/18 and 2018/19 school years. To characterize schools' use of text messaging, the study team calculated descriptive measures to represent the mean number of overall and of attendance-related text messages per student.

References

Attendance Works. (2016). *Portraits of change: Aligning school and community resources to reduce chronic absenteeism.* Johns Hopkins University, Center for Social Organization of Schools. Retrieved October 14, 2020, from https://www.attendanceworks.org/portraits-of-change/.

Balfanz, R., & Byrnes, V. (2012). *The importance of being in school: A report on absenteeism in the nation's public schools.* Johns Hopkins University, Center for Social Organization of Schools. Retrieved September 30, 2019, from https://www.attendanceworks.org/importance-school-report-absenteeism-nations-public-schools/.

Gottfried, M. A. (2017). Linking getting to school with going to school. *Educational Evaluation and Policy Analysis, 39*(4), 571–592.

Appendix C. Supporting analyses

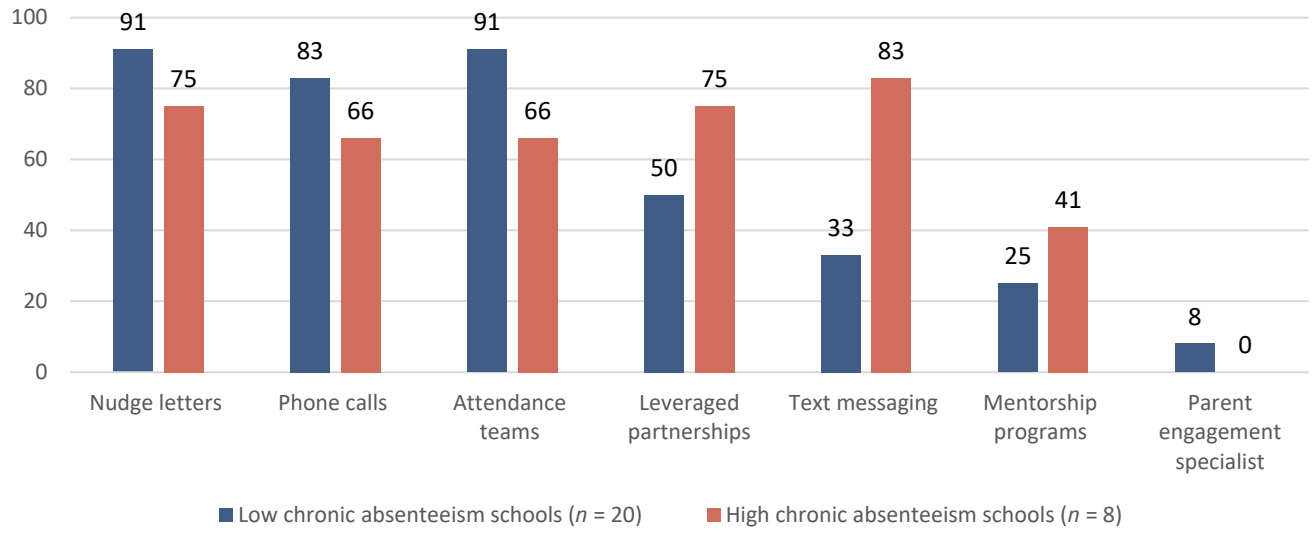
This appendix contains supporting analyses related to schools' use of attendance supports and text-messaging.

Schools with high chronic absenteeism implemented different types of attendance supports than schools with low rates of chronic absenteeism

Schools with low chronic absenteeism most frequently used nudge letters, attendance teams, and phone calls with moderate or high fidelity during the 2018/19 school year (figure C1). Schools with high chronic absenteeism most frequently used text messaging, leveraged partnerships, and nudge letters with moderate or high fidelity. Schools in each category were similar in demographic characteristics (see table B4 in appendix B).

Figure C1. Schools with high chronic absenteeism implemented text messaging and leveraged partnerships with moderate or high fidelity more often than schools with low chronic absenteeism, 2018/19

Percent of schools



Note: Schools with low chronic absenteeism rates were those in which less than 30 percent of students were chronically absent, schools with medium rates were those in which 30–40 percent of students were chronically absent, and schools with high rates were those in which more than 40 percent of students were chronically absent.

Source: Authors' analysis of attendance support and school absenteeism data from the Providence Public School District, 2018/19.

Trial schools used the text-messaging system more intensively for attendance-related and overall text messaging than non–trial schools

Seven schools participated in a three-month trial of the text-messaging system prior to the system being accessible to all schools in the district. The trial lasted for approximately three months and was intended to provide feedback to the district before the rollout to all schools. Text-messaging data from the trial period were not available to the study team. Trial schools were selected by the district on the basis of being willing to provide feedback on the text-messaging system. The trial school group comprised three elementary schools and four secondary schools. On average, trial schools had lower chronic absenteeism rates than non–trial schools (table C1). Trial schools used the text-messaging system more intensively, both for attendance-related text messages and overall, than non–trial schools (table C2). This is consistent with the assumption that these schools would be apt to engage with the system in order to provide the district with feedback on the system before the rollout to all schools.

Table C1. Chronic absenteeism rate for trial schools and non–trial schools, 2016/17–2018/19 (percent)

	2016/17		2017/18		2018/19	
School group	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Trial schools (*n* = 7)	29.5	6.6	30.1	6.6	32.8	8.1
Non–trial schools (*n* = 32)	43.5	12.1	42.7	11.5	42.1	11.3

Source: Authors' analysis of school absenteeism and school-level data from the Providence Public School District, 2016/17–2018/19.

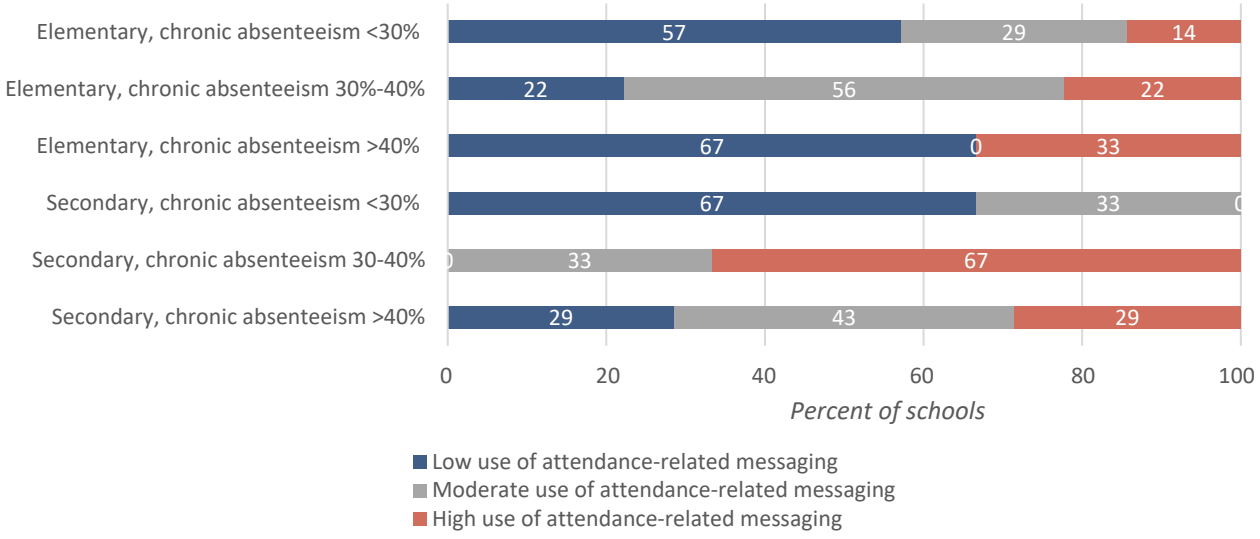
Table C2. Trial and non-trial schools' text-messaging rates, 2018/19 (text messages per month per student)

	Trial schools (*n* = 7)		Non–trial schools (*n* = 32)	
Text-messaging indicator	Mean	Standard deviation	Mean	Standard deviation
Attendance-related text messaging	1.4	2.3	0.3	0.8
Overall text messaging	6.2	3.6	3.1	2.1

Source: Authors' analysis of school absenteeism and school-level data from Providence Public School District, 2018/19.

A sensitivity analysis was conducted to examine whether the findings from research question 2 were driven by trial school participation. The results suggest that the patterns are consistent regardless of whether trial schools are included in or excluded from the analysis. Patterns of attendance-related text messaging per month per student were similar when analyzed without the trial schools (figure C2), secondary schools sent more attendance-related text messages than elementary schools (figure C3), and attendance-related text messages increased and remained high in schools in which chronic absenteeism decreased but declined in schools in which chronic absenteeism increased (figure C4).

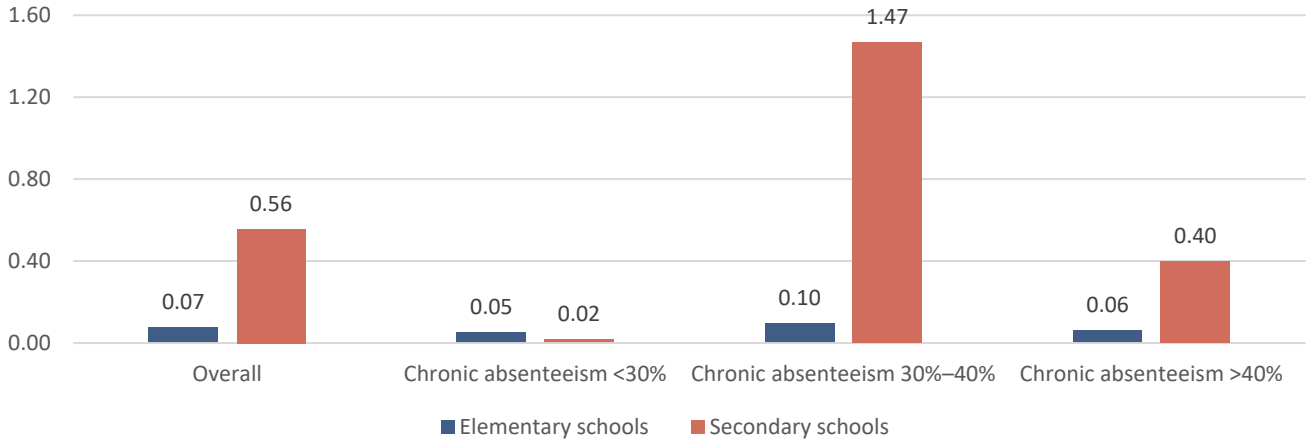
Figure C2. Among non–trial schools the majority of schools with high use of attendance-related text messaging were secondary schools with chronic absenteeism rates above 30 percent, 2018/19



Note: Low-use schools sent 0–0.01 attendance-related text message per month per student, moderate-use schools sent 0.01–0.17, and high-use schools sent 0.19–6.14.
Source: Authors' analysis of text-messaging data from the Providence Public School District, 2018/19.

Figure C3. Among non–trial schools, secondary schools sent more attendance-related text messages per month than elementary schools, 2018/19

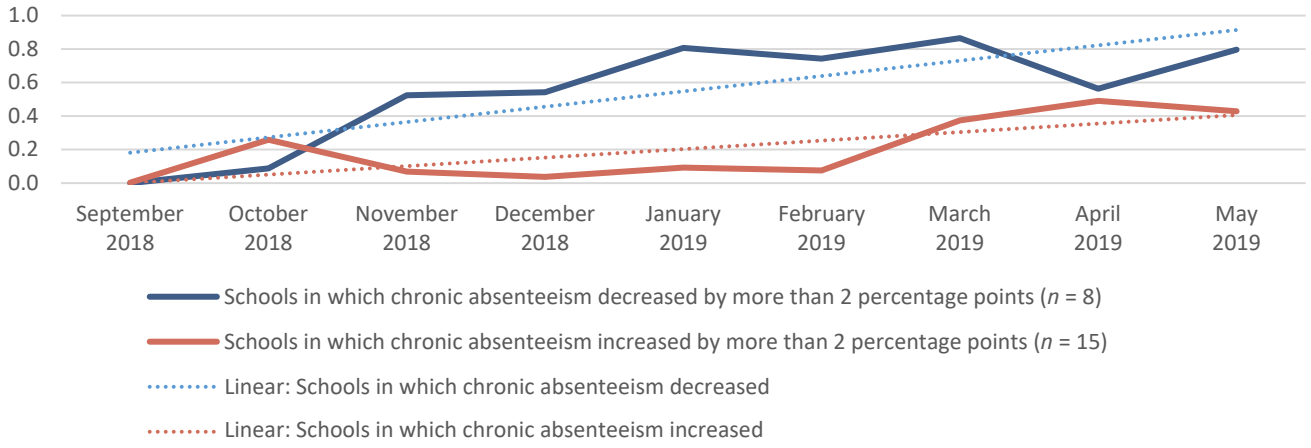
Attendance-related text messages sent per month per student



Source: Authors' analysis of text-messaging data from the Providence Public School District, 2018/19.

Figure C4. In non–trial schools attendance-related text messaging during the 2018/19 school year was higher in schools in which chronic absenteeism decreased between 2017/18 and 2018/19 than in schools in which chronic absenteeism increased

Attendance-related text messages sent per month per student



Source: Authors' analysis of text-messaging data from the Providence Public School District, 2017/18 and 2018/19.

Descriptive tables

Table C3. School-level chronic absenteeism rate, by grade level, 2016/17–2018/19 (percent)

	2016/17		2017/18		2018/19	
Grade level	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Elementary schools (*n* = 22)	29.5	6.6	30.1	6.6	32.8	8.1
Secondary schools (*n* = 17)	43.5	12.1	42.7	11.5	42.1	11.3
Overall (*n* = 39)	35.6	11.6	35.6	11.4	36.8	10.5

Source: Authors' analysis of school absenteeism and school-level data from the Providence Public School District, 2016/17–2018/19.

Table C4. Elementary and secondary schools' implementation of attendance supports with moderate or high fidelity, 2018/19 (percent)

Grade level	Nudge letters	Phone calls	Attendance teams	Leveraged partnerships	Text messaging	Mentorship programs	Parent engagement specialists
Elementary schools (*n* = 22)	77	91	82	68	41	27	23
Secondary schools (*n* = 17)	94	57	71	71	88	53	6
Overall (*n* = 39)	85	77	77	69	62	38	15

Note: The average student population of elementary schools (*n* = 474) was smaller than that of secondary schools (*n* = 735). Therefore, the attendance supports being implemented by elementary schools were also implemented by schools with smaller student populations.
Source: Authors' analysis of attendance support data from the Providence Public School District, 2018/19.

Table C5. Attendance supports used by schools in which chronic absenteeism decreased between 2017/18 and 2018/19

School	Grade level	Attendance support							Total number of attendance supports	Chronic absenteeism rate (percent)		Difference (percentage points)
		Nudge letters	Phone calls	Attendance teams	Leveraged partnerships	Text messaging	Mentorship program	Parent engagement specialist		2017/18	2018/19	
School A	High	✓	✓	✓		✓	✓		5	45.8	35.6	–10.2
School B	High	✓				✓			2	55.2	46.4	–8.8
School C	High	✓	✓		✓	✓			4	63.9	56.5	–7.4
School D	High	✓	✓	✓	✓	✓	✓		6	50.9	44.6	–6.3
School E	High	✓	✓	✓	✓	✓	✓		6	25.2	19.8	–5.4
School F	Middle	✓	✓	✓		✓	✓	✓	6	31.9	29.6	–2.3
School G	Elementary	✓	✓	✓	✓	✓			5	38.2	34.1	–4.1
School H	Elementary		✓	✓					2	22.4	20.0	–2.4

Source: Authors' analysis of attendance support and school absenteeism data from the Providence Public School District, 2017/18 and 2018/19.

Table C6. Attendance supports used by schools in which chronic absenteeism increased between 2017/18 and 2018/19

School	Grade level	Attendance support							Total number of attendance supports	Chronic absenteeism rate (percent)		Difference (percentage points)
		Nudge letters	Phone calls	Attendance teams	Leveraged partnerships	Text messaging	Mentorship program	Parent engagement specialist		2017/18	2018/19	
School A	High	✓		✓	✓	✓	✓		5	55.7	60.9	5.2
School B	High	✓							1	58.4	61.4	3.0
School C	Middle	✓			✓				2	36.7	43.0	6.3
School D	Middle	✓	✓		✓	✓	✓		5	31.3	37.5	6.2
School E	Middle	✓		✓	✓	✓	✓		5	32.7	35.5	2.8
School F	Middle	✓	✓	✓	✓	✓			5	37.0	39.2	2.2
School G	Elementary	✓							1	17.2	24.1	6.9
School H	Elementary	✓	✓	✓		✓	✓		5	24.7	31.3	6.6
School I	Elementary	✓	✓		✓	✓	✓	✓	6	33.3	39.8	6.5
School J	Elementary	✓	✓	✓	✓		✓		5	21.5	26.8	5.3
School K	Elementary	✓	✓	✓	✓				4	20.1	25.1	5.0
School L	Elementary		✓	✓	✓	✓			4	41.3	46.2	4.9
School M	Elementary	✓	✓	✓	✓	✓	✓		6	41.9	46.7	4.8
School N	Elementary	✓	✓	✓	✓	✓			5	25.6	30.3	4.7
School O	Elementary		✓		✓				2	42.4	46.7	4.3
School P	Elementary	✓	✓	✓					3	26.2	29.7	3.5
School Q	Elementary	✓	✓	✓	✓		✓	✓	6	37.2	40.4	3.2
School R	Elementary	✓	✓	✓	✓			✓	5	24.6	27.4	2.8
School S	Elementary	✓	✓	✓	✓				4	22.6	25.1	2.5
School T	Elementary		✓	✓					2	30.1	32.5	2.4

Source: Authors' analysis of attendance support and chronic absenteeism data from the Providence Public School District, 2017/18 and 2018/19.

Table C7. Average chronic absenteeism rates by number of attendance supports that schools used, 2017/18 and 2018/19 (percent)

Number of supports	Average chronic absenteeism rate (percent)		Difference (percentage points)
	2017/18	2018/19	
1 support (*n* = 2 schools)	37.8	42.7	4.9
2 supports (*n* = 5 schools)	37.3	37.7	0.4
3 supports (*n* = 4 schools)	27.9	29.0	1.1
4 supports (*n* = 6 schools)	38.1	39.4	1.3
5 supports (*n* = 15 schools)	35.3	36.9	1.6
6 supports (*n* = 7 schools)	36.7	36.7	0.0

Source: Authors' analysis of attendance support and school absenteeism data from the Providence Public School District, 2017/18 and 2018/19.

Table C8. Attendance-related and overall text messaging per month per student, by school grade span, 2018/19

Grade level	Attendance-related text messages per month per student		Overall text messages per month per student	
	Mean	Standard deviation	Mean	Standard deviation
Elementary schools (*n* = 22)	0.1	0.2	3.6	2.2
Secondary schools (*n* = 17)	0.7	1.2	5.6	2.8
Overall (*n* = 39)	0.4	0.8	4.5	2.6

Source: Authors' analysis of text-messaging data from the Providence Public School District, 2018/19.

Table C9. Use of the text-messaging platform with moderate or high fidelity and attendance-related and overall text messaging per month per student, by school chronic absenteeism rate, 2018/19

School group	Percent of schools that used the text-messaging platform with moderate or high fidelity	Attendance-related text messages per month per student		Overall text messages per month per student	
		Mean	Standard deviation	Mean	Standard deviation
Low chronic absenteeism schools (*n* = 20)	33	0.2	0.4	4.1	2.9
Medium chronic absenteeism schools (*n* = 11)	71	0.4	0.9	4.5	2.5
High chronic absenteeism schools (*n* = 8)	77	0.8	1.3	5.5	2.0

Source: Authors' analysis of text-messaging and chronic absenteeism data from the Providence Public School District, 2018/19.

Table C10. Attendance-related and overall text messaging per month per student, by school chronic absenteeism rate and grade span, 2018/19

	Low chronic absenteeism schools		Medium chronic absenteeism schools		High chronic absenteeism schools	
School group	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Attendance-related text messages per month per student						
Elementary	0.1	0.1	0.1	0.1	0.1	0.1
Secondary	0.2	0.1	1.4	1.8	1.0	2.0
Overall	0.1	0.1	0.6	1.2	0.7	1.7
Overall text messages per month per student						
Elementary	1.8	0.9	3.1	1.5	3.7	1.7
Secondary	1.7	0.3	7.3	3.0	4.5	3.0
Overall	1.7	0.8	4.6	2.9	4.3	2.6

Note: Schools with low chronic absenteeism rates were those in which less than 30 percent of students were chronically absent, schools with medium rates were those in which 30–40 percent of students were chronically absent, and schools with high rates were those in which more than 40 percent of students were chronically absent.
Source: Authors' analysis of text-messaging and chronic absenteeism data from the Providence Public School District, 2018/19

Table C11. Demographic characteristics of schools with low and high attendance-related and overall text-messaging use, 2017/18 and 2018/19

	Attendance-related text messaging		Overall text messaging	
Characteristic	Low-use schools (*n* = 13)	High-use schools (*n* = 13)	Low-use schools (*n* = 13)	High-use schools (*n* = 13)
Average text messages per month per student[a]	<0.01	1.3	1.3	6.7
Grade level (number of schools)				
Elementary schools	9	5	9	4
Middle schools	2	3	4	3
High schools	2	5	0	6
Chronic absenteeism rate, 2017/18	34.0	40.4	30.2	43.4
Percent of White students	10.5	8.8	10.2	6.2
Percent of Black students	16.5	17.1	15.4	16.2
Percent of Hispanic students	61.7	64.4	64.7	69.0
Percent of students that have an Individualized Education Program	13.2	17.3	14.8	12.7
Percent of students eligible for the National School Lunch Program	83.3	84.7	85.7	87.2
Percent of multilingual learner students	28.4	30.3	31.1	36.0
Average number of attendance supports implemented with moderate or high fidelity	4.2	4.0	4.0	4.5

Note: School-level demographic rates are for the 2018/19 school year. For attendance-related text messaging, low-use schools sent 0–0.01 attendance-related text message per month per student, and high-use schools sent 0.19–6.14. For overall text messaging, low-use schools sent 0.59–1.93 text messages per month per student, and high-use schools sent 3.93–11.69.
a. Refers to attendance-related text messages in the attendance-related columns and to overall text messages in the overall columns.
Source: Authors' analysis of text-messaging and chronic absenteeism data from the Providence Public School District, 2017/18 and 2018/19.

Table C12. Overall and attendance-related text-messaging blasts and targeted events, 2018/19 (percent)

Text message type	Proportion of all text-messaging events	Proportion of attendance-related text-messaging events	Proportion of non-attendance-related text-messaging events	Average proportion of student body receiving each text message
Attendance-related				
Targeted	7.5	99.5	na	2.8
Blast	0.04	0.5	na	86.0
Non-attendance-related				
Targeted	90.8	na	98.1	1.2
Blast	1.7	na	1.9	87.0

na is not applicable.
Note: The sample includes 35,276 messaging events, which account for 736,427 text messages.
Source: Authors' analysis of text-messaging and school absenteeism data from the Providence Public School District, 2018/19.

Table C13. Schools with a disproportionate number of their attendance-related text messages in a language other than English, 2018/19

School	Grade level	Proportion of all text messages in a language other than English (percent)	Proportion of attendance-related text messages in a language other than English (percent)	Difference (percentage points)	Proportion of students who are multilingual learner students (percent)	Proportion of students who are chronically absent (percent)
School A	Elementary	34.1	60.9	–26.8	39.1	27.4
School B	Elementary	22.9	47.7	–24.8	21.4	25.2
School C	Elementary	30.5	43.2	–12.7	35.2	32.5
School D	Elementary	55.0	65.7	–10.7	47.2	34.1
School E	Secondary	12.6	22.9	–10.3	0.5	19.8
School F	Elementary	25.3	34.4	–9.2	20.7	33.3

Source: Authors' analysis of text-messaging and chronic absenteeism data from the Providence Public School District, 2018/19.

Table C14. Attendance-related text messaging per month per student, by whether chronic absenteeism decreased or increased, 2017/18 and 2018/19

Change in chronic absenteeism	2018				2019					Linear regression slope
	September	October	November	December	January	February	March	April	May	
Decreased by more than 2 percentage points (*n* = 8)	0.00	0.09	0.52	0.54	0.81	0.74	0.86	0.56	0.80	0.09
Increased by more than 2 percentage points (*n* = 20)	0.57	0.39	0.22	0.19	0.24	0.22	0.48	0.48	0.54	0.01

Note: *n* = 20.
Source: Authors' analysis of text-messaging and chronic absenteeism data from the Providence Public School District, 2017/18 and 2018/19.