Parent Teacher Home Visits

Student Outcomes and Parent Teacher Home Visits

Prepared for
Parent Teacher Home Visits

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Contents

Foreword

Across the country, we know with increasing clarity that when children miss too much school, they are less likely to read proficiently by third grade, pass middle school classes, graduate from high school, and persist in college. When chronic absence reaches high levels, the resulting churn in the classroom impacts the learning experience of all children.

Chronic absence, typically defined as missing 10% of school in a school year for any reason, has profound implications. Absenteeism contributes to high school dropout rates, leaving students without the academic credentials and skills needed to compete in a 21st century workforce. Regular attendance is the precursor to the "soft skills" that employers expect and require. Students who do not develop the habits associated with good attendance in the early years will find it difficult to develop them as adults. Children who are sick miss school, and their parents miss work. All of us committed to a strong economic future for our nation have a real stake in reducing the number of days that children stay home due to preventable causes.

Fortunately, we can do something about chronic absenteeism. What works is taking a comprehensive approach that begins with engaging students and families as well as leveraging the power of data and relationships to notice and prevent absences from adding up. The Parent Teacher Home Visits (PTHV) model of building trusting relationships among educators and families is a proven foundational strategy that helps engage families as partners in children's education on multiple fronts. As this report shows, PTHV is an invaluable strategy that schools can use to make a measurable difference. Attendance Works has seen the impact of PTHV firsthand while privileged to work together in the same school districts.

It might not always be obvious that simply strengthening relationships among families and schools would be associated with concrete academic and social-emotional outcomes for students, but it is. This report details the results of rigorous research conducted by Johns Hopkins University that show a strong connection between the PTHV model of relational home visits and decreases in chronic absence rates and increases in English Language Arts proficiency among students. Moreover, these outcomes were observed for individual students who received a home visit as well as for students who attended a school that systemically implemented home visits, *whether the student had a home visit or not.* Relational home visits help build a school culture that supports and engages students, families, and educators to support student success.

This report is the third of a three-study national evaluation of PTHV's model. The first study showed that the model builds understanding and trust, reduces anxiety and stress, and fosters positive cross-group interactions between educators and families—all critical capacities for reducing implicit biases that often lead to disconnects, missed opportunities, and discriminatory behaviors in and beyond the classroom. The second study examined implementation practices of the PTHV model and concluded that PTHV's five core practices were highly effective, valued by practitioners, and should maintain their "non-negotiable" status.

Taken together, these three studies offer a bright spot to all who wish to bring about equity in schools and improve students' chances for success. They illustrate and prove the value of creating opportunities for teachers to forge bonds of caring and respect with families, especially in a world where, too often, teachers do not live in the same community as the students they teach. Such relationships ensure that students are motivated to come to school because they are hopeful about their future and they believe that their teachers will help them arrive at that future. These relationships also ensure that students and families feel comfortable seeking out advice and assistance if they encounter a challenge that makes it difficult for students to get to school or to focus on learning when they are in class. Attendance Works has benefited greatly from a long history of partnership with PTHV. I invite you to read this report so you too can appreciate the value of PTHV's rich, thoughtful, and insightful approach to ensuring every student has the opportunity to learn and thrive.

Hedy N. Chang, Executive Director

Attendance Works

Acknowledgments

We are grateful to the four school districts, their staff, and their families who invested time and resources in making Studies 1, 2, and 3 a reality. We also recognize their bold vision for meaningful family engagement, and their commitment to investing in, creating, and supporting the systems that realize it. Similarly, we appreciate the organizations that provided the financial resources to carry out the evaluation. Flamboyan Foundation, National Education Association, Stuart Foundation, and W.K. Kellogg Foundation all generously funded the work. Through their support for this study, these districts and funders contributed to advancing the knowledge base of both PTHV and the greater field of family engagement.

Executive Summary

Key Findings and Take-Aways

- The findings support the implementation of Parent Teacher Home Visits (PTHV) as an evidenced-based family engagement approach to improve student outcomes.
- On average, schools that systematically implemented PTHV experienced decreased rates of student chronic absenteeism and increased rates of student English Language Arts (ELA) and math proficiency.
- Students whose families participated in a home visit were less likely to be chronically absent than students whose families did not participate.
- For students, attending a school that was implementing home visits with at least 10% of students' families was associated with a decreased likelihood of being chronically absent.
- For students, attending a school that was implementing home visits with at least 10% of students' families was associated with an increased likelihood of scoring at or above proficiency on standardized ELA assessments.

Introduction

More than 50 years of research has shown that the influence of families on children's development and academic achievement begins before children start their schooling and lasts through high school. The Coleman Report, commissioned by the U.S. Department of Education to examine causes of educational inequality and published in 1966, for example, found that out-of-school factors far out-weighed in-school factors as an explanation of student achievement. More recently, research shows that chronic absenteeism, a leading indicator of student dropout, is the result of a combination of student, family, school, and community factors. In light of these findings, it seems clear that inequalities in educational opportunities and achievement can only be remedied through collaborations among educators, families, and community partners.

Families are critical to children's educational success. Children whose families hold high expectations, set goals, monitor progress, and actively assist with learning at home are most likely to do well in school. As researchers continue to study which school practices are most likely to engage families in ways that translate into improved student outcomes, conducting home visits is emerging among the more promising school practices.

The Parent Teacher Home Visits Approach

Parent Teacher Home Visits (PTHV) is a strategy for engaging educators and families as a team to support student achievement. The PTHV model developed from an understanding that family engagement is critical to student success. However, complex barriers often prevent meaningful partnerships between educators and families. A group of teachers and families in a low-income neighborhood in south Sacramento, California, came together in 1998 to address a deep distrust between the school district and the community. Out of this, parents and teachers created PTHV based upon community organizing principles of empowerment. The model focuses on building trust and communication and collaborating toward shared goals for student success.

The model is designed to promote a mutually supportive and accountable relationship between educators and families. The goals are for the home visits to help nurture trusting relationships, support open lines of communication, and cultivate a partnership mindset between educators and families. Prior to the first home visit, educators are trained in the PTHV model. Once trained, they visit the homes of their students in teams of two, conducting an initial visit in the summer or fall. The model calls for positive topics of discussion, including the "hopes and dreams" that educators and family members have for students. The intention is for communication to continue after the first home visit, allowing an opportunity for teachers to apply what they learned about their students in the classroom setting and for families to find new and additional ways to engage with the school and children's coursework. A second visit in the winter or spring is highly recommended. The focus of this visit should be tailored to the needs of the student, with reference to the hopes, dreams, and goals shared in the first visit. The focus of the second visit could include, but is not limited to, academics, social-emotional learning supports, and/or attendance.

In the last 20 years, PTHV has expanded to a network of over 700 communities in 25 states, each a collaboration between local partners such as school districts, unions for credentialed teachers and classified staff, and community organizations. While details of the model vary by location, participating sites agree to five core practices:

1. Visits are always voluntary for educators and families and arranged in advance.
2. Teachers are trained and compensated for visits outside their school day.
3. The focus of the first visit is relationship-building; educators and families discuss hopes and dreams.
4. No targeting – visit all or a cross-section of students, so there is no stigma.
5. Educators conduct visits in pairs and, after the visit, reflect with their partners.

This evaluation of PTHV builds upon other sponsored works that investigated implementation of the program in schools and the impact of home visits on educators and families' mindsets. The three studies of PTHV are intended to further understanding of the potential for home visits to impact teachers' culturally responsive practices and student attendance and academic outcomes as well as to uncover some of the core elements of program implementation that facilitate positive outcomes in these domains.

Study Design

This study addresses the following research questions:

1. *To what extent does schools' implementation of PTHV predict school-level outcomes?*
2. *To what extent does student and family participation in a home visit predict student attendance and proficiency on standardized tests?*

Four large, urban, highly diverse districts from across the United State participated in this study. From each district, researchers requested student-level data about demographic characteristics (e.g., gender, race) and student outcomes (e.g., attendance and standardized test performance). Additionally, districts were asked to provide data about the implementation of PTHV in their schools. Districts were asked to provide these data for all students enrolled in prekindergarten through twelfth grade in the 2015–16 and 2016–17 school years.

This report presents findings from two separate analyses drawing on data representing over 100,000 students in kindergarten through eighth grade, attending hundreds of schools. Three districts provided data indicating which students' families participated in home visits. This information enabled the creation of a variable about home visit participation for each student as well as a variable representing the percentage of families at each school that participated in a home visit. The first measure allowed testing of the relationship between individuals' experiences with home visits and student outcomes, while the second measure allowed testing of whether there was a relationship between the school-wide implementation of PTHV and student

outcomes. This report focuses on two types of outcomes: chronic absenteeism and proficiency on state English Language Arts (ELA) and math assessments.

The first analyses compared school outcomes of schools that conducted home visits with at least 10% of students' families to those of schools that conducted fewer or no home visits with families. To study the relationship between home visits and individual student outcomes, the second analyses drew upon a sample of over 300,000 students from 110 schools in which home visits were conducted with at least 1% of students' families. These analyses used a multilevel study design that included rigorous controls at the student and school levels to ensure, as much as possible, that changes observed in chronic absenteeism and academic proficiency could be attributed to participation in home visits.

Findings

Findings from this study suggest that implementation of the PTHV model can support positive outcomes for students, associated with a decreased likelihood of chronic absenteeism and an increased likelihood of proficiency in ELA.

Home Visits and School-Level Outcomes

On average, schools that systematically implemented PTHV experienced decreased rates of student chronic absenteeism and increased rates of student ELA and math proficiency.

In the first set of analyses, which examined PTHV implementation in relation to school averages of chronic absenteeism and standardized test performance, systematic implementation—in which 10% or more of students' families received a home visit—predicted favorable results for chronic absenteeism, ELA proficiency, and math proficiency at the school level in at least some districts. In three of the four districts, schools that systematically implemented PTHV demonstrated greater reductions in the average percentage of chronically absent students from the 2015–16 to 2016–17 school years. In all three of these districts, the schools implementing PTHV systemically experienced at least a 5% drop in chronic absenteeism from one year to the next. This consistency was not evidenced in schools that conducted home visits with a smaller portion of students' families.

Similarly, in three districts, schools that systematically implemented the PTHV program outperformed the remaining schools in their district on the standardized ELA assessments. For example, in District 2, schools that systemically implemented PTHV increased the percentage of students proficient in ELA by 5%, whereas the rest of the district had an increase in ELA proficiency of only 3%. Additionally, schools in District 3 systematically implementing PTHV had a 1% decrease in the percentage of students proficient in ELA, a far smaller decrease than the 7% experienced by schools in the rest of the district. Finally, at the school level, in two districts, schools that conducted home visits with 10% or more of their students' families demonstrated greater improvements in the percentage of students scoring at least proficient on standardized math tests compared with schools that did not conduct home visits to this scale. These differences were statistically significant.

Home Visits and Student-Level Outcomes

Home visits were directly and indirectly associated with a reduction in students' likelihood of being chronically absent. Students whose families participated in a home visit were less likely to be chronically absent. Additionally, attending a school that was implementing home visits with at least 10% of students' families was associated with a decreased likelihood of being chronically absent as well as an increased likelihood of scoring at or above proficiency on standardized ELA assessments.

The final set of analyses tested the effect of home visits on individual student outcomes using multilevel logistic regression analyses, pooling data from across the three districts that provided student-level information about home visit participation. The analyses, using data on more than 33,000 students in over

110 schools, allowed testing of the extent to which home visit participation was associated with the odds of a student being chronically absent or performing proficient or above on state ELA and math exams. The findings indicated that implementation of PTHV and conducting home visits was associated with a lower likelihood of students being chronically absent.

- Students whose families participated in a home visit had 21% lower odds of being chronically absent in the 2016–17 school year compared with students whose families did not participate in a home visit.
- Students attending a school that had systematically implemented home visits had 22% lower odds of being chronically absent in 2016–17 compared with their peers in schools that did not implement PTHV at this level.

Home visits were also associated with student outcomes on state standardized tests. Students attending a school that systematically implemented PTHV were more likely to score at or above proficiency on their standardized ELA test, compared with students in schools that did not implement PTHV at this level.

- Attending a school systemically implementing home visits was associated with 35**%** higher odds of scoring proficient.

Conclusions

The findings of this study do more than support the existing research literature suggesting that family engagement promotes student success; they affirm the efficacy of school outreach to families as a strategy to improve student attendance and achievement outcomes. Specifically, the findings support the implementation of PTHV as an evidenced-based family engagement approach to improve student outcomes. Using a large dataset, with information about thousands of students drawn across several districts and controlling for important student variables including prior outcome measures, the analyses provide strong support for implementing home visits.

This study supports PTHV as an approach to home visits that promotes improved family-school relationships as well as one that can serve as a foundation for helping more students attend school regularly and achieve at higher levels

In particular, two important patterns emerged from the analyses. First, students whose families participated in at least one home visit were less likely to be chronically absent in school, accounting for whether they were chronically absent the year before and important background characteristics. In addition, the analyses showed that students attending a school conducting home visits systematically were less likely to be chronically absent and more likely to score proficient on the standardized ELA assessment, regardless of whether their family participated in a home visit. Implementing PTHV, therefore, may not just benefit the students whose families participate directly in a home visit but may have a positive impact for all students attending those schools. Although these findings cannot demonstrate that home visits cause the observed changes in student outcomes, they provide strong evidence in support of home visits and suggest the need for continued research to better investigate the mechanisms through which PTHV implementation predicts student outcomes over time.

INTRODUCTION

Families' influence on children's development and academic outcomes begins immediately in the early years of childhood, lasting through high school. The Coleman Report, (Coleman et al., 1966), for example, found that out-of-school factors far out-weighed in-school factors as an explanation of student achievement. More recently, research shows that chronic absenteeism, a leading indicator of student dropout, is the result of a combination of student, family, school, and community factors (Black, Seder, & Kekahio, 2014; Kearney, 2008). Finally, research by Bryk, Sebring, Allensworth, Luppescu, and Easton (2010) shows that school-family relationships contribute to sustained school improvement. In light of these findings, it seems clear that inequalities in educational opportunities and achievement can only be remedied through collaborations among educators, families, and community partners.

Research accumulated over the past several decades clearly demonstrates the important role and impact families have on student achievement and educational outcomes. Studies show that children whose families hold high expectations, set goals, monitor progress, and actively assist with learning at home are most likely to do well in school, with those modes of engagement appearing to be the primary driver (Hill & Tyson, 2009). Research also has established consistent and reliable connections between families' involvement in student achievement and attendance (Pomeranz, Moorman, & Litwach, 2007; Jeynes, 2012). In today's education landscape, research, policy, and practice discussions no longer center on *if* family engagement matters but, rather, on *what types* of family engagement matter and how families can be supported to play those roles, particularly in an increasingly diverse public school system (Sheldon & Jung, 2015). Home visit programs have emerged as one of the effective ways to engage families and have become an increasingly popular approach schools and districts adopt to strengthen family-school relationships.

Home visits conducted by teachers and school staff provide the opportunity for educators to establish positive relationships with families (McKnight, Venkateswaran, Laird, Robles, & Shalev, 2017). These relationships can lead to increased involvement in the home, so children become more academically engaged and interested in their learning. Specifically, by guiding families to hold higher expectations for their children with respect to regular school attendance home visits may result in greater parental investment in getting students to school (Figure 1). Several studies have shown that participation in home visits is associated with elementary school outcomes including higher rates of daily attendance and grade-level reading comprehension (Epstein & Sheldon, 2002; Sheldon & Jung, 2015). Analyses elsewhere suggest that teachers' participation in home visits is associated with higher levels of job satisfaction (Sheldon & Hutchins, 2014) as well as teacher perceptions that students are benefiting academically from home visits (Wright, Shields, Black, & Waxman, 2018). Though promising, continued and more rigorous research is required to understand whether and how home visits effect student and teacher outcomes.

In December 2016, the PTHV national organization contracted with researchers from RTI International and Dr. Steven Sheldon of Johns Hopkins University to conduct a three-study national evaluation of the PTHV model. The first study, conducted by RTI, explored whether and how PTHV helps to interrupt implicit biases that educators and families may have about each other. The second study, also conducted by RTI, examined implementation of the PTHV model.

This third and final study examines the link between home visits and student outcomes, including academics and attendance. The three studies of the PTHV model are intended to further understanding of the potential for home visits to impact teachers' culturally responsive practices, student attendance, and academic outcomes, as well as to uncover some core elements of program implementation that facilitate positive outcomes in these domains.

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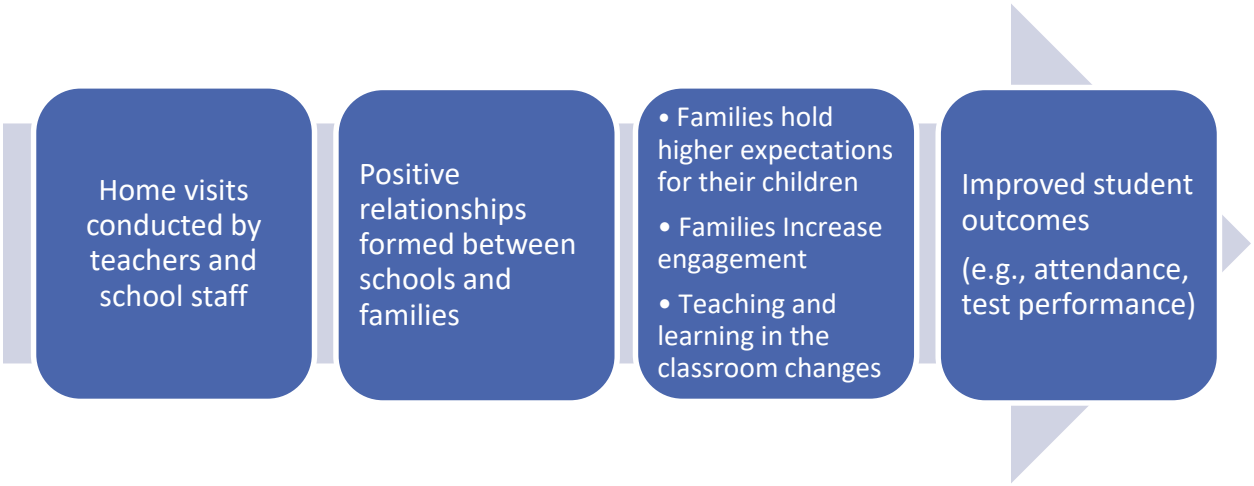
Figure 1. Study 3 Home Visit Theory of Change



This study addresses the overarching question: To what extent does participation in PTHV impact students' academic and nonacademic outcomes? It investigated the extent to which participation of students and their parents in a home visit from their teachers or school staff predicts student attendance and proficiency on standardized tests. It also examined the extent to which schools' implementation of PTHV predicts individual student outcomes.

This report provides findings from analyses using data collected from four school districts. It begins with a landscape of the data collected across the four districts and proceeds to describe the extent of PTHV implementation in each district. Next, the report provides results of analyses testing the relationships between schools' implementation of PTHV and school-level outcomes of chronic absenteeism and proficiency on standardized tests. Finally, the report presents findings from analyses that examined the extent to which participating in a home visit is associated with the likelihood a student is chronically absent and scores proficient on state standardized assessments.

Parent Teacher Home Visits Model[1]

As described in Study 2 about program implementation, PTHV is a strategy for engaging educators and families as a team to support student achievement. The PTHV model developed from an understanding that family engagement is critical to student success. However, complex barriers often prevent meaningful partnerships between educators and families. A group of teachers and families in a low-income neighborhood in south Sacramento, California, came together in 1998 to address a deep distrust between the school district and the community. Out of this, parents and teachers created PTHV based upon community organizing principles of empowerment. The model focuses on building trust and communication and partnering on shared goals for student success.

The model is designed to promote a mutually supportive and accountable relationship between educators and families. The goals are for these visits to help nurture trusting relationships, support open lines of communication, and cultivate a partnership mindset between educators and families. First, educators are trained in the model. Once trained, educators are asked to visit the homes of their students in teams of two, conducting an initial visit in the summer or fall. The model calls for positive topics of discussion, including the "hopes and dreams" that educators and family members have for students. The intention is for communication to continue after the first home visit, allowing an opportunity for teachers to apply what they learned about their students in the classroom setting and for

[1] This section was taken from the Study 2 report on PTHV implementation by Venkateswaran, Laird, Robles, and Jeffries (2018).

families to find new and additional ways to engage with the school and children's coursework. A second visit in the winter or spring is highly recommended. The second visit focuses on academics, with reference to the hopes, dreams, and goals shared in the first visit.

In the last 20 years, PTHV has expanded to a network of over 700 communities in 25 states, each a collaboration between local partners such as school districts, unions for credentialed teachers and classified staff, and community organizations. While details of the model vary by location, participating sites agree to five core practices:

1. Visits are always voluntary for educators and families and arranged in advance.
2. Teachers are trained and compensated for visits outside their school day.
3. The focus of the first visit is relationship-building; educators and families discuss hopes and dreams.
4. No targeting – visit all or a cross-section of students, so there is no stigma.
5. Educators conduct visits in pairs and, after the visit, reflect with their partners.

Findings from the report by Venkateswaran et al. (2018) highlight that, through their experience implementing PTHV, educators reinforce the value of all five core practices as important to a strong home visit program.

Study Overview

This evaluation of PTHV complements the previous studies. Whereas Study 1 looked at home visits in relation to participants' mindsets (McKnight et al., 2017), and Study 2 examined promising practices for PTHV implementation (Venkateswaran et al., 2018), this study focuses on student outcomes. The focus is on understanding the extent to which schools' implementation of PTHV and families' participation in home visits have a measurable connection to student outcomes. The evaluation began with collecting program and student data across four school districts that have implemented PTHV widely and for several years. Change in outcomes for students whose families participated in home visit was compared to those whose families did not participate. This study was guided primarily by the following research questions:

1. *To what extent does schools' implementation of PTHV predict school-level outcomes?*
2. *To what extent does student and family participation in a home visit predict student attendance and proficiency on standardized tests?*

Methodology

Four large urban districts from across the United States participated in this study. One district is in the Mid-Atlantic region, one is in the Mountain region, and two of the districts are in the West. These districts were recruited for the study by the PTHV organization because of their geographical diversity and deep history with the work, and because district leadership at the time supported widespread implementation of the PTHV program. Participating districts agreed to support the evaluation through monetary or in-kind assistance up to $20,000.

From each district, researchers requested student-level data about demographic characteristics (e.g., gender, race) and student outcomes (e.g., attendance and standardized test performance). Additionally, districts were asked to provide data about the implementation of PTHV in their schools. Finally, districts provided student data for those enrolled in prekindergarten through twelfth grade in the 2015–16 and 2016–17 school years.

Sample Districts

Table 1 presents a summary of the four school districts that participated in this study.

Table 1. Summary Characteristics of Districts in This Study

	District 1	District 2	District 3	District 4
Number of students[1]	48,600	92,300	46,700	63,900
Number of schools	115	199	77	104
Percent African American	62%	13%	16%	Less than 5%
Percent White	14%	23%	17%	45%
Percent Hispanic	20%	56%	40%	40%
Percent Asian	Less than 5%	Less than 5%	17%	Less than 5%
Percent special education	14%	11%	13%	14%
Percent English language learners	12%	37%	20%	15%
Percent free and reduced-price meals	77%	67%	70%	47%

[1] Rounded to the nearest hundreds

District 1 is a large urban school district in the Mid-Atlantic region. According to the district website, 115 schools served approximately 42,000 students in the 2016–17 school year. The district serves a diverse student body: over 60% of its students are African American, 20% are Hispanic, and 14% are White. More than three out of every four (77%) students are recognized as economically disadvantaged, 14% had an Individualized Education Program (IEP) (i.e., received special education services), and 12% are labeled English language learners.

District 2 is a large urban school district in the Mountain region. According to the district's website, more than 200 schools served approximately 92,000 students in the 2016–17 school year. The largest percentage of students in the district are Hispanic (56%). White students make up just over 23% of the student population, and African American students comprise about 13% of the students. Two-thirds (67%) of students receive free or reduced-price meals, 37% are labeled English language learners, and 11% receive special education services.

District 3 is a large urban school district located in the West. According to the district's website, the district serves approximately 43,000 students. The district is ethnically diverse: 40% Hispanic, 19% Asian, 18% White, and 14% African American. The district serves a large percentage of students considered economically disadvantaged (70%), one in five are English language learners, and just over 12% percent receive special education services.

District 4 is a large urban school district located in the West serving, according to their website, just under 64,000 students. The district serves primarily White and Hispanic students (44% and 41%, respectively) and a small percentage of Asian (4%) and African American (2%) students. In the 2016–17 school year, almost half (47%) received free or reduced-priced meals, 16% were labeled English language learners, and 14% receive special education services.

Variables

Dependent Variables

Chronic Absenteeism. Across the 2015–16 and 2016–17 school years and for each student, rate of daily attendance was calculated by dividing the amount of time in schools by the amount of school time possible. This provided a percentage of attendance. Students who missed school 10% or more of the time were categorized as chronically absent (coded "1"). Students who missed less than 10% of school were coded "0" for this variable.

ELA and Math Proficiency. Districts provided scale scores for each student, which were then converted to the levels of performance according to the metrics created by the assessment companies and used by the districts. Across both school years and for students in third through eighth grades, students were categorized as either having scored at or above proficiency standards on their state tests (coded "1") or scored below proficiency (coded "0"). These categorizations were used for standardized tests in ELA and math.

In two districts, students took the Smarter Balanced state standardized test. Students in the other two districts took the Partnership for Assessment of Readiness for College and Careers exam.

Independent Variables

Home Visit Participation. With the exception of District 3, central offices provided information about which students and families participated in a home visit. Students whose families participated in at least one home visit were coded "1," and those whose families did not participate were coded "0."

Systematic Implementer of Home Visits. This categorical variable was created to distinguish between schools that implemented the PTHV program to at least some scale and those that did not. Schools that implemented home visits with at least 10% of their students' families were coded "1," while those that conducted fewer or no home visits were coded "0." For District 3, this variable was calculated differently because the data indicated only which teachers conducted home visits without any information about which student participated. The proportion of students who participated in a home visit was calculated by adding up how many home visits occurred in a school, dividing that number by two—because it is always a team of two teachers or school staff that go on every home visit—and then dividing that number by the total number of students in the school.

Demographic Characteristics. In addition to home visit participation, districts provided background characteristics for each student. The following information was collected: grade, gender, race/ethnicity, special education status, English language learner status, and whether the student received free or reduced-price meals.

Analytic Sample

Across the four districts, PTHV implementation data indicated that home visits were rarely conducted for students in high school (i.e., ninth through twelfth grades). In District 4, for example, only 10% of all home visits occurred with high school families. As a result, the samples used for this report excluded students in ninth through twelfth grades. Additionally, prekindergarten students did not have attendance or test performance data and were, therefore, eliminated from all analyses. Tables A-1 and A-2, in the appendix, present summaries about the data collected and the analyses the data could support.

All analyses included the prior year's measure of each outcome, further limiting the analytic sample. Specifically, students who were in kindergarten during the 2016–17 school year did not have attendance data for the prior year and were excluded from the study. Additionally, standardized tests were administered only to students in third through eighth grades. For analyses predicting proficiency on ELA or math tests, students who were in grades lower than third grade by the 2015–16 school year could not be included in the analyses.

Analytic Approach

To accomplish the goals of Study 3, estimating the extent to which implementation and participation of home visit programs is associated with student outcomes, two analytic approaches were utilized. Each of these approaches used slightly different samples and outcome variables, providing an opportunity to examine the extent to which there is converging evidence about home visit connections to student outcomes.

The first set of analyses estimated the relationship between home visit participation and student outcomes, aggregated to the school level. Because PTHV is a school-wide program, understanding the extent to which home visits across the school is associated with school outcomes was important. These analyses compared school-level outcomes for those schools implementing PTHV systemically to outcomes in all other schools in the district.

The second set of analyses used multilevel modeling to estimate the effect of home visits on individual student outcomes. These analyses estimated the relationship between home visits and student outcomes in two ways: (1) testing whether the participation of students' families in a home visit was associated with a reduced likelihood of being chronically absent or an increased likelihood of scoring at least proficient on the state standardized exam and (2) testing whether attendance in a school that implemented PTHV at scale predicted stronger student outcomes, regardless of whether students themselves had families who participated in a home visit. These analyses used student-level data from only those schools that implemented home visits with at least 1% of students' families.

FINDINGS

Parent Teacher Home Visits Implementation: Which Students Received Home Visits

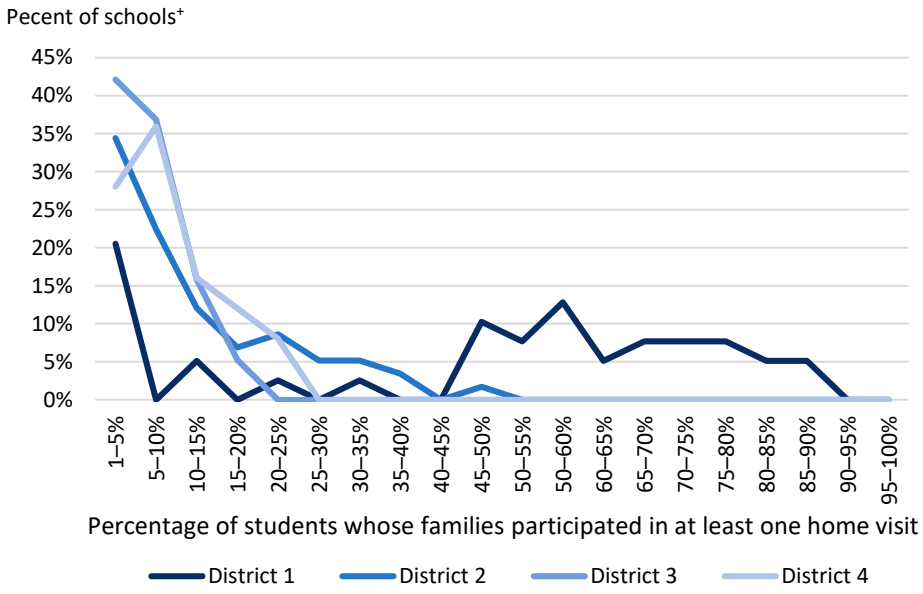
Analyses began by contrasting the characteristics of students who received a home visit to the characteristics of students in the district overall. These analyses did not include District 3 because student-level information about home visit participation was not provided. District 1 reported the greatest percentage of students receiving a home visit (21.3%)—more than one out of every five students. Districts 2 and 4, by comparison, conducted home visits with a much smaller percentage of students' families (6.4% and 2.7%, respectively). For District 3, by our estimates, educators conducted home visits with approximately 1.7% of students' families.

Overall, there was consistency across districts regarding which families and students participated in home visits. As shown in Table A-3, in the appendix, educators in Districts 1, 2, and 4 were more likely to conduct home visits with students in elementary grades (kindergarten through fifth grade) compared with those in middle school grades (sixth through eighth grades). Additionally, White students were underrepresented in the home visit program participant sample compared with the district overall, while Hispanic students were overrepresented. Finally, across all three districts, students from families with limited incomes (e.g., those receiving free or reduced-price meals) were more likely to receive a home visit, as were students labeled English language learners.

In District 1, the proportion of schools that did not conduct any home visits or did so with less than 1% of students' families in the 2016–17 school year was 60.6%. In District 2, 63.5% of schools did not conduct any home visits. In Districts 3 and 4, nearly three-quarters of the schools did not conduct any home visits (70.7% and 70.9%, respectively). Figure 2 presents the distribution of the rates of home visit implementation across the four districts, excluding those that conducted home visits with fewer than 1% of students' families. As shown in the figure, District 1 had a greater proportion of schools conducting home visits with more than 50% of students' families than the other three districts involved with this study.

Figure 2 also shows that Districts 2, 3, and 4 exhibited a similar distribution of schools based on the percentage of home visits conducted with students' families. These three districts had a strong positive skew, meaning that most of their schools conducted home visits with a very small percentage of families. Across these three districts, very few schools conducted home visits with even 40% of families. This distribution of schools according to the percentage of families with whom they conducted a home visit suggests that, perhaps with the exception of District 1, the implementation of PTHV tends to be focused on a smaller, targeted set of schools.

Figure 2. Distribution of School-Level Implementation of Home Visits, by District



+ Among a restricted sample of schools that conducted home visits for more than 1% of students' families.

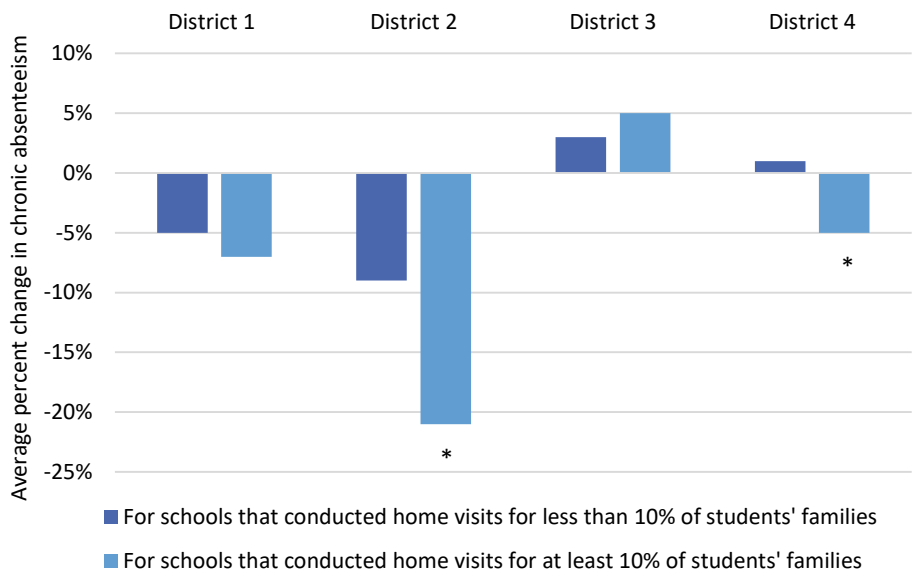
Home Visits and School-Level Outcomes

School-level averages for the percentage of students chronically absent as well as the percentage proficient on the standardized ELA and math assessments are represented in Table A-4, in the appendix. The table also provides comparisons for schools that implemented PTHV systematically (with more than 10% of students' families) versus those that implemented home visits with less than 10% of students' families.

On average, schools that implemented PTHV systemically tended to experience greater improvement in rates of student chronic absenteeism than those who conducted home visits less extensively.

As shown in Figure 3, in three of the four districts, schools that implemented PTHV at higher levels demonstrated greater reductions in the average percentage of chronically absent students from the 2015–16 to 2016–17 school years. In two of these districts, Districts 2 and 4, the differences were statistically significant. There were no statistically meaningful differences between systematically implementing schools and non-systematically implementing schools in the change in percentage of chronically absent students in Districts 1 and 3.

Figure 3. Change in Average Chronic Absenteeism Rates, Across Districts, in Systematically vs. Non-Systematically Parent Teacher Home Visits Implementing Schools



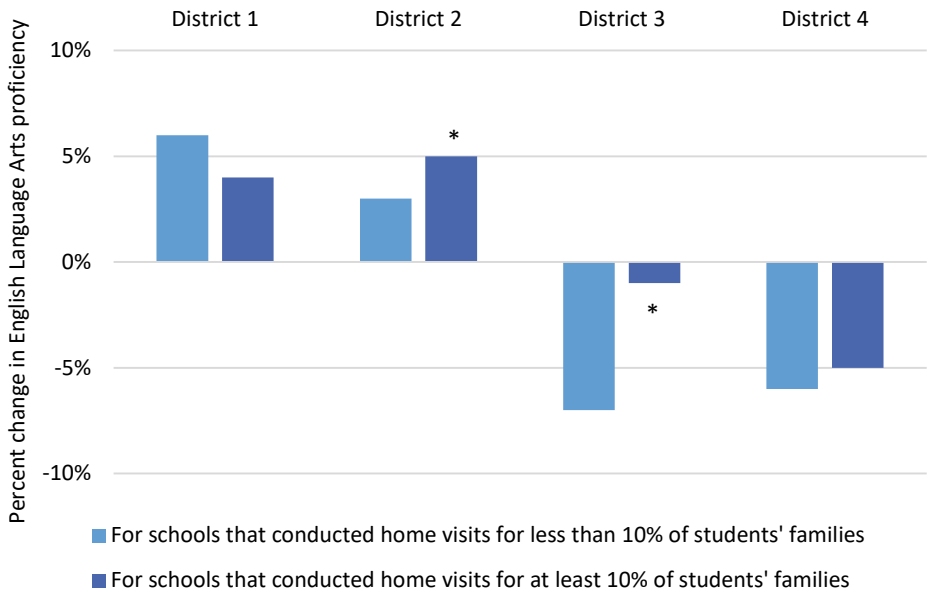
* Difference is statistically significant ($p < 0.05$).

In District 3, although the difference was not statistically meaningful, it appears at the surface that systematically implementing schools had, on average, a greater increase in chronic absences across 2 years than did the comparison group of schools. One caveat for District 3 is that the number of schools that had conducted home visits for at least 10% of students' families was very small, causing the mean to be heavily affected by strong outliers or high variation within the group. The lack of a statistically significant difference suggests that this may very likely be the case and that the difference in means between the systematically and non-systematically implementing schools are not large enough to draw any conclusions.

On average, schools that implemented PTHV systemically performed better on ELA and math proficiency assessments relative to other schools in their district.

In two districts, schools that systematically implemented PTHV improved student proficiency on ELA assessments at levels that were statistically significantly better than schools that did not implement home visits as systematically (Figure 4). In District 2, for example, systematically implementing schools saw a 5% increase in students scoring proficient on the ELA test, compared with 3% for schools that did not conduct home visits or that did so with fewer than 10% of students' families. In District 3, systematically implementing schools had a 1% drop in the percentage of students who scored proficient on the ELA test, a far smaller decline than the 7% drop found in the non-systematically implementing schools. In Districts 1 and 4, there were no statistically meaningful differences between systematically and non-systematically implementing schools in terms of how much change was observed in the percentage of students who scored proficient on the state ELA exam.

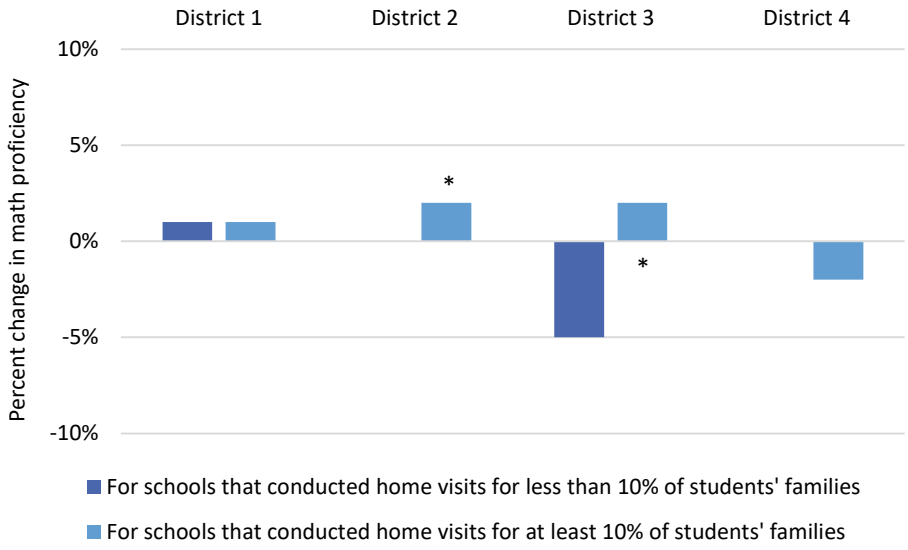
Figure 4. Change in School Rates of Proficiency on Standardized English Language Arts tests, Across Districts, in Systematically vs. Non-Systematically Parent Teacher Home Visits Implementing Schools



* Difference is statistically significant ($p < 0.05$).

Finally, Figure 5 presents data about the relationship between change in students' performance on standardized math tests and PTHV implementation. As with the analyses on ELA proficiency, in Districts 2 and 3, schools that conducted home visits with 10% or more of students' families demonstrated greater improvements in the percentage of students scoring at least proficient on standardized math tests compared with schools that did not conduct home visits to this scale. These differences were statistically significant. Also shown in Figure 5, in District 4, schools conducting home visits with 10% or more of students' families had a smaller percentage of students who scored at or above proficient in the 2016–17 school year compared with schools that did not implement PTHV as widely. This difference was not statistically significant, suggesting wide variation in test performance within each of the implementation groups.

Figure 5. Change in School Rates of Proficiency on Standardized Math Tests, Across Districts, in Systematically vs. Non-Systematically Parent Teacher Home Visits Implementing Schools



* Difference is statistically significant ($p < 0.05$).

Note: Where no bar is visible, schools demonstrated no change (0%) in test performance.

Examining Parent Teacher Home Visits Dosage in District 1

Widespread implementation of PTHV in schools was associated with a reduction in chronic absenteeism.

On average, schools in District 1 performed home visits with the greatest percentage (21%) of students' families. Across the schools, however, this level of home visit implementation ranged a great deal, from 0% of students' families up to 88%. In the prior analyses, schools systematically conducting home visits were not statistically different from those conducting home visits with a smaller proportion of families. The wide variation in how much District 1 schools conducted home visits provided an opportunity to examine whether a higher threshold or dosage of home visits predicted student outcomes.

Schools in the district were categorized into four groups. The first group were those that conducted home visits with less than 1% of students' families ("Non-Implementers"). The second group were "Weak Implementers" and conducted home visits with 1.0% to 9.9% of students' families. The third group ("Medium Implementers") conducted home visits with between 10.0% and 49.9% of students' families. Finally, the fourth group conducted home visits with 50% or more of students' families ("Deep Implementers").

Statistical analyses compared school outcomes for each implementation group (Table 2). The analyses showed that Deep Implementers experienced greatest declines in the percentage of students chronically absent (8.3%). Analysis of Variance tests shows that Deep Implementers experienced greater declines in chronic absenteeism than Weak and Medium Implementers ($F = 4.01$, $p = 0.010$). However, Deep Implementers did not differ, in terms of the amount chronic absenteeism declined, from the Non-Implementers of District 1. Non-Implementers, however, tended to serve families in better financial situations and, on average, had higher levels of student outcomes than the schools implementing PTHV. In sum, these findings provide additional evidence that widespread implementation of PTHV in schools is associated with a reduction in chronic absenteeism.

Table 2. Change in Chronic Absenteeism in District 1 Schools, by Level of Parent Teacher Home Visits Implementation

Levels of Implementation	Number of Schools	% Change in Chronic Absenteeism
Non-implementers	48	-6.7%
Weak implementers	7	+6.2%
Medium implementers	7	–2.6%
Deep implementers	24	–8.3%

Home Visits and Student-Level Outcomes

The final set of analyses tested the effect of home visits on individual student outcomes. These analyses used multilevel logistic regression analyses, pooling the data provided by three districts on students whose families participated in home visits (Districts 1, 2, and 4).

Students attending a school that systematically implemented home visits had 22% lower odds of being chronically absent in 2016–17

The analyses allowed testing the extent to which home visit participation was associated with the odds of a student being chronically absent or performing proficient or above on state ELA and math exams. The sample for these analyses included only those students who attended a school that conducted at least some home visits because, across the three districts, the PTHV schools and non-PTHV schools appeared to serve different families and communities. Results of these analyses are presented in Table A-5, in the appendix.

Students who attended schools that conducted home visits with more than 10% of students' families were less likely to be chronically absent than students in schools that conducted home visits with fewer than 10% of students' families. In addition, students whose families participated in a home visit were less likely to be chronically absent.

The analyses showed that implementation of PTHV and participating in home visits was associated with a lower likelihood of students being chronically absent than when PTHV was not implemented and families did not participate. First, all other things being equal, students attending a school that systematically implemented home visits (i.e., 10% or more of students' families were visited) had 22% lower odds of being chronically absent in 2016–17 compared with their peers in schools that did not implement PTHV at this level. This statistically significant effect attributable to PTHV implementation was separate from whether students' families participated in a home visit, and it represents a small-to-moderate effect. Moreover, the analyses showed that in addition to the effect of attending a systematically implementing school, students whose families participated in a home visit had 21% lower odds of being chronically absent in the 2016–17 school year compared with students whose families did not participate. This effect, too, was statistically significant.

Students attending a school that implemented home visits with at least 10% of students' families had higher odds of scoring at or above proficiency on standardized ELA assessments compared with students in schools that implemented home visits in less than 10% of students' families.

Home visits were associated with student outcomes on state standardized tests. Students attending a school that implemented PTHV systematically were more likely to score at or above proficiency on their standardized ELA test, compared with students in schools that did not implement PTHV systematically. Attending a strong home visit school was associated with 35% higher odds of scoring proficient compared with attending a school that did not conduct home visits with at least 10% of students' families. For

math proficiency, statistically significant associations with home visit participation or systematic implementation were not found.

Attending a school systematically implementing home visits was associated with 35% higher odds of scoring proficient on standardized ELA assessments compared with attending a school that did not systematically implement home visits

In the 2015–16 school year, the average rate of chronic absence for students in schools that systematically implemented home visits was 16.9%. The odds ratio of 0.79 suggests that the odds of students being chronically absent in the 2016–17 school year would be smaller for students whose families participated in a home visit than for students whose families did not participate. Based on the baseline rate of chronic absenteeism (16.9%), and given the 0.79 odds ratio associated with home visits, the approximated new rate of chronic absenteeism would be 13.9%. This is a 17.8% reduction in the rate of chronic absenteeism that is attributable to having participated in a home visit.

Similarly, the odds ratio for chronic absenteeism of students attending a school that is systematically implementing home visits is 0.78. Using the 16.9% baseline rate for chronic absenteeism, the approximated new rate of chronic absenteeism is 13.7%, an 18.9% reduction in the rate of chronic absenteeism attributable to the systematic implementation of PTHV.

The odds ratio for ELA proficiency of students attending a school systematically implementing PTHV, whether or not they participated in a home visit directly, was 1.35, suggesting that they are more likely to score at or above proficiency on their standardized ELA assessment than those attending schools that do not implement PTHV at scale. Given the 22.8% baseline rate of ELA proficiency in the 2015–16 school year, the analyses suggest a 25% increase in ELA proficiency attributable to schools' systematic implementation of the PTHV program.

We estimate a 17.8% reduction in the rate of chronic absenteeism attributable to having participated in a home visit

District-by-District Analyses

Tables A-6–A-8 present multilevel models estimating the effect of home visits on each student outcome, separately, for Districts 1, 2, and 4. The analyses predicting chronic absenteeism (Table A-6) show that in all three districts, students whose families participated in a home visit had lower odds of being chronically absent in the 2016–17 school year than students whose families did not participate. These odds were statistically significant for Districts 1 and 2.

Tables A-7 and A-8 present results estimating the relationship between home visits and whether students scored at or above proficiency on their ELA and math assessments. These findings are mixed. In some districts and for some subjects, home visit participation was associated with a greater likelihood of proficiency, but no consistent trends were evident.

CONCLUSION AND IMPLICATIONS

School systems across the country are searching for family engagement practices that, when implemented well, can move the needle on critical student outcomes. The findings of this study do more than support the existing research literature suggesting that family engagement promotes student success; they affirm the efficacy of school outreach to families as a strategy to improve student attendance and achievement outcomes. By using a large dataset, with thousands of cases drawn across several districts and controlling for important student variables including prior outcome measures, the analyses provide strong support for implementing home visits. Specifically, the study supports PTHV, an approach to home visits that promotes improved family-school relationships, as a foundation for helping more students attend school regularly and achieve at higher levels.

The analyses showed that building relationships with students' families benefited students in two ways. First, students whose families participated in at least one home visit were less likely to be chronically absent in school, accounting for whether they were chronically absent the year before and important background characteristics (e.g., family socioeconomic status, gender, grade, race/ethnicity, ELL status, and special education status). In the pooled sample, home visits were associated with a 21% decrease in the likelihood of being chronically absent. This effect on student attendance is crucial because research continues to show that students who are chronically absent are the most vulnerable for experiencing low academic achievement and for dropping out of school before graduation. In a recent *Every Graduates* report, Balfanz and Byrnes (2012) show how chronic absenteeism increases achievement gaps in elementary, middle, and high schools. Implementing home visits in earlier grades may be a way to prevent school failure early on.

This study also suggests that implementing PTHV may not just benefit the students whose families participate directly in a home visit. The analyses showed that students attending a school that conducted home visits with at least 10% of students' families were less likely to be chronically absent and more likely to score proficient on the standardized ELA assessment. Although it is not clear the mechanisms by which this school-level implementation manifests itself, one possibility is that relationships established between teachers and some families impact their beliefs about and interactions with all students, as suggested in Study 1. However, it may also be that schools implementing PTHV widely are working in other ways to better engage and partner with families, and that the rate of home visits serves as an indicator of a general school climate.

This study supports PTHV as an approach to home visits that promotes improved family-school relationships as well as one that can serve as a foundation for helping more students attend school regularly and achieve at higher levels

More research looking at the quality of PTHV implementation in relation to student outcomes is needed. These studies should collect data from principals, teachers, and families to understand the mechanism by which home visit programs affect family processes and student outcomes. Ideally, collecting information about the home visit, as well as data on parental beliefs and engagement behaviors before and after a home visit, would provide strong insight into the causal mechanisms that allow parent-teacher relationships to translate to student outcomes. Research into the mechanisms driving the school-level changes associated with home visits is also needed and would add great insight into how home visits might impact teachers and their teaching.

Appendix A

Table A-1. Overview of Data From Each District

	District 1	District 2	District 3	District 4
Approximate number of students, 2016–17 school year	70,300	62,000	87,200	45,900
Outcomes				
Attendance (days attended and possible days)	Student-level	Student level	Student-level	Student-level
State English Language Arts test	Student-level	Student level	Student-level	Student-level
State math test	Student-level	Student level	Student-level	Student-level
% passing English Language Arts test	Calculated	Calculated	Calculated	Calculated
% passing math test	Calculated	Calculated	Calculated	Calculated
Chronic absenteeism rate	Calculated	Calculated	Calculated	Calculated
Student/Family Characteristics				
Student/family characteristics	Student-level	Student-level	Student-level	Student-level
Free or reduced-price meals	Student-level	Student-level	Student-level	Student-level
Special education status	Student-level	Student-level	Student-level	Student-level
English language learner status	Student-level	Student-level	Student-level	Student-level
Grade level	Student-level	Student-level	Student-level	Student-level
Implementation measures				
# of home visits received by every student	Available	Available	Not Available	Available
# of home visits provided by every teacher	Can be calculated	Available	Available	Available
# of home visits provided at every school	Calculated	Calculated	Calculated	Calculated
ID of teacher/staff that conducted home visits for each student	Available	Available	Not Available	Available

Note: Number of students rounded to the nearest hundreds.

Table A-2. Data Collected That Can Address the Following Research Questions

	District 1	District 2	District 3	District 4
Descriptive characteristics related to home visits				
How do demographic characteristics of students who have participated in a home visit compare with the rest of the district?	x	x		x
How do the school outcomes of students who have participated in a home visit compare with the rest of the district?	x	x		x
To what extent were home visits conducted in schools?	x	x	x	x
How are home visits related to student outcomes				
To what extent is home visit participation related to student attendance?	x	x		x
To what extent is home visit participation related to chronic absenteeism?	x	x		x
To what extent is home visit participation related to student performance on state standardized tests?	x	x		x
How are home visits related to school outcomes				
To what extent is the number of home visits at a school related to chronic absenteeism rates?	x	x	x	x
To what extent is the number of home visits at a school related to average student attendance rates?	x	x	x	x
To what extent is the number of home visits at a school related to rates of proficiency on standardized tests (English Language Arts and math)?	x	x	x	x

Table A-3. Student Characteristics for the District Compared With Those With a Home Visit

	District 1		District 2		District 3	
	% of district	% of home visit students	% of district	% of home visit students	% of district	% of home visit students
Total	**100**	**21.3**	**100**	**6.4**	**100.0**	**2.7**
Grade level						
Kindergarten	13.9	16.5	11.2	21.3	1.4	3.0
1st grade	13.7	16.5	10.8	22.1	11.8	12.1
2nd grade	13.0	14.6	11.2	17.1	11.9	17.8
3rd grade	13.2	14.9	11.6	18.6	13.0	12.3
4th grade	13.0	14.2	11.6	15.2	13.1	15.0
5th grade	10.8	12.5	11.9	1.0	12.7	9.6
6th grade	7.8	3.9	11.0	2.7	12.2	5.8
7th grade	7.1	3.4	10.3	1.9	11.8	14.3
8th grade	7.7	3.7	10.4	0.1	12.1	2.3
Race / Ethnicity						
Asian	2.0	1.6	3.3	3.0	4.1	1.9
African-American	60.4	63.2	12.6	7.7	2.2	1.6
White	16.4	6.8	25.3	18.9	43.8	23.5
Hispanic	18.5	26.4	53.8	66.9	41.3	66.9
Native American	0.2	0.2	0.6	0.6	1.6	0.9
Pacific Islander	0.2	0.1	0.3	0.3	1.1	1.5
Multiracial	2.4	1.7	4.2	2.6	6.0	3.8
Special education status						
Yes	14.7	16.7	11.9	12.7	15.9	25.0
No	85.32	83.3	88.1	87.4	84.1	75.0
English language learner						
Yes	17.2	24.5	41.74	59.4	17.7	40.3
No	82.8	75.5	58.26	40.6	82.3	59.7
Free or reduced-price meals						
Yes	75.2	93.1	66.21	77.0	45.7	74.9
No	24.8	6.9	33.79	23.0	54.3	25.1
2015–16 school year student outcomes						
Chronic absenteeism	17.7	18.9	16.4	13.6	8.1	9.3
% English Language Arts proficient	28.9	15.1	35.3	30.0	50.3	23.8
% math proficient	30.2	20.4	28.5	28.6	42.3	22.3

Table A-4. Comparison of School-Level Percentages of Chronically Absent Students and Students Scoring Proficient or Above on State English Language Arts and Math Exams, Between Schools Conducting Home Visits for at Least 10% of Students Families' and Those Conducting Home Visits for Less Than 10% of Students' Families, for 2015–16 and 2016–17 School Years

	District 1					District 2				
Average of the change in % chronic absenteeism	**Mean**	***SE***	***N***	***t***	***p***	**Mean**	***SE***	***N***	***t***	***p***
For schools that conducted home visits for <10% of their students	-0.05	0.19	81			-0.09	0.01	117		
For schools that conducted home visits for at least 10% of their students	-0.07	0.08	31			-0.21	0.01	48		
For the full district sample	-0.06	0.17	112			-0.13	0.01	165		
T-test of difference in means				-0.60	0.550				-6.50	<0.001
Average of the change in % proficient or above on state English Language Arts exam	**Mean**	***SE***	***N***			**Mean**	***SE***	***N***		
For schools that conducted home visits for <10% of their students	0.06	0.06	67			0.03	0.00	107		
For schools that conducted home visits for at least 10% of their students	0.04	0.06	30			0.05	0.01	46		
For the full district sample	0.05	0.06	97			0.04	0.00	153		
T-test of difference in means				-1.23	0.222				2.01	0.046
Average of the change in % proficient or above on state math exam	**Mean**	***SE***	***N***			**Mean**	***SE***	***N***		
For schools that conducted home visits for <10% of their students	0.01	0.09	68			0.00	0.01	107		
For schools that conducted home visits for at least 10% of their students	0.01	0.07	30			0.02	0.01	46		
For the full district sample	0.01	0.08	98			0.01	0.00	153		
T-test of difference in means				0.21	0.833				2.12	0.036

See notes at end of table.

Table A-4. Comparison of School-Level Percentages of Chronically Absent Students and Students Scoring Proficient or Above on State English Language Arts and Math Exams, Between Schools Conducting Home Visits for at Least 10% of Students Families' and Those Conducting Home Visits for Less Than 10% of Students' Families, for 2015–16 and 2016–17 School Years—Continued

	District 3					District 4				
Average of the change in % chronic absenteeism	**Mean**	***SE***	***N***	***t***	***p***	**Mean**	***SE***	***N***	***t***	***p***
For schools that conducted home visits for <10% of their students	0.03	0.01	58			0.01	0.00	77		
For schools that conducted home visits for at least 10% of their students	0.05	0.02	4			-0.05	0.05	10		
For the full district sample	0.03	0.01	62			0.01	0.01	87		
T-test of difference in means				0.56	0.580				-3.09	0.002
Average of the change in % proficient or above on state English Language Arts exam	**Mean**	***SE***	***N***	***t***	***p***	**Mean**	***SE***	***N***	***t***	***p***
For schools that conducted home visits for <10% of their students	-0.07	0.00	58			-0.06	0.02	75		
For schools that conducted home visits for at least 10% of their students	-0.01	0.03	4			-0.05	0.02	10		
For the full district sample	-0.06	0.00	62			-0.06	0.02	85		
T-test of difference in means				3.06	0.003				0.12	0.903
Average of the change in % proficient or above on state math exam	**Mean**	***SE***	***N***	***t***	***p***	**Mean**	***SE***	***N***	***t***	***p***
For schools that conducted home visits for <10% of their students	-0.05	0.01	58			0.00	0.02	75		
For schools that conducted home visits for at least 10% of their students	0.02	0.03	4			-0.02	0.02	10		
For the full district sample	-0.05	0.01	62			-0.03	0.02	85		
T-test of difference in means				3.17	0.002				0.77	0.193

Note: To calculate how many home visits took place in District 3 schools, the number of home visits that teachers conducted was summed up and then divided by 2, assuming that all visits were conducted by a team of two individuals as is recommended.

Table A-5. Hierarchical Linear Models, Using Pooled District Data, Predicting the Odds Ratio of Students Being Chronically Absent or Scoring Proficient on Standardized Exams in 2016–17 School Year

Variables	Chronic absence	English Language Arts proficiency	Math proficiency
Student-level variables			
Chronic absence in 2015–16 school year	12.33***		
	(0.46)		
English Language Arts proficiency in 2015–16 school year		20.06***	
		(0.98)	
Math proficiency in 2015–16 school year			32.75***
			(1.82)
Home visit participation in 2016–17 school year	0.79***	1.11	1.09
	(0.05)	(0.10)	(0.11)
District membership (vs. District 1)			
District 2	0.99	1.09	0.81
	(0.11)	(0.16)	(0.14)
District 4	0.71*	0.73	0.60*
	(0.10)	(0.12)	(0.12)
Grade level (vs. 1st grade)			
2nd grade	0.98		
	(0.06)		
3rd grade	0.93		
	(0.06)		
4th grade	0.90	0.94	0.93
	(0.06)	(0.10)	(0.12)
5th grade	0.94	1.05	1.06
	(0.06)	(0.11)	(0.14)
6th grade	1.32**	0.64***	0.76*
	(0.12)	(0.07)	(0.10)
7th grade	1.05	0.98	0.86
	(0.10)	(0.09)	(0.09)
8th grade	1.13		
	(0.11)		
Race (vs. White)			
Asian	0.78	1.90***	1.57**
	(0.11)	(0.28)	(0.25)
African American	1.05	0.49***	0.42***
	(0.08)	(0.05)	(0.05)
Hispanic	1.05	0.78***	0.75***
	(0.07)	(0.06)	(0.06)
Other	1.03	0.66***	0.87
	(0.09)	(0.08)	(0.11)
Eligibility for free or reduced-price meals	1.58***	0.71***	0.70***
	(0.09)	(0.05)	(0.05)
Participation in special education	1.50***	0.19***	0.32***
	(0.07)	(0.02)	(0.04)
English Language Learner	0.69***	0.56***	0.72***
	(0.03)	(0.03)	(0.05)

See notes at end of table.

Table A-5. Hierarchical Linear Models, Using Pooled District Data, Predicting the Odds Ratio of Students Being Chronically Absent or Scoring Proficient on Standardized Exams in 2016–17 School Year—Continued

Variables	Chronic absence	English Language Arts proficiency	Math proficiency
School-level variables			
Average of free or reduced-price meals	0.60	0.67	1.05
	(0.28)	(0.35)	(0.68)
Percentage of non-White students	5.86**	0.30	0.28
	(3.51)	(0.20)	(0.23)
Systematic implementer of home visits	0.78*	1.34*	1.29
	(0.08)	(0.15)	(0.19)
Constant	0.03***	1.23	0.50
	(0.01)	(0.37)	(0.18)
Student observations	33,236	17,720	17,602
Number of schools	116	115	115

Note: Standard errors are in parentheses. Comparison group: White, 1st grade. Treatment schools conducted home visits with at least 10% of students' families.
* $p < 0.05$, ** $p < .01$, *** $p < .001$.

Table A-6. Multilevel Models Testing Home Visit Effects on Chronic Absenteeism for Each District

Variables	District 1	District 2	District 4
Student-level variables			
Chronic absence in 2015–16 school year	7.71***	12.97***	15.81***
	(0.51)	(0.60)	(1.17)
Home visit participation in 2016–17 school year	0.81**	0.60***	0.89
	(0.06)	(0.09)	(0.11)
Grade level (vs. 1st grade)			
2nd grade	0.81	1.10	0.88
	(0.09)	(0.09)	(0.12)
3rd grade	0.86	1.02	0.84
	(0.09)	(0.09)	(0.12)
4th grade	0.75**	0.90	1.07
	(0.08)	(0.08)	(0.15)
5th grade	0.78*	0.97	1.09
	(0.09)	(0.08)	(0.15)
6th grade	1.16	1.21	1.46**
	(0.19)	(0.15)	(0.20)
7th grade	0.94	1.27	2.16**
	(0.16)	(0.16)	(0.54)
8th grade	0.92	1.49**	2.13**
	(0.15)	(0.18)	(0.54)
Race (vs. White)			
Asian	0.80	0.93	0.50**
	(0.45)	(0.16)	(0.13)
African American	1.64	0.97	1.22
	(0.51)	(0.09)	(0.22)
Hispanic	1.33	1.33***	0.76**
	(0.43)	(0.11)	(0.07)
Other	1.56	1.07	0.91
	(0.65)	(0.13)	(0.11)
Eligibility for Free or reduced-price meals	2.84**	1.77***	1.17
	(0.96)	(0.13)	(0.09)
Participation in special education	1.44***	1.48***	1.47***
	(0.11)	(0.09)	(0.12)
English language learner	0.63**	0.61***	0.87
	(0.09)	(0.03)	(0.08)
School-level variables			
Average of free or reduced-price meals	0.66	1.54	1.56
	(0.48)	(1.04)	(1.19)
Percentage of non-White students	26.00*	1.21	1.40
	(33.51)	(0.94)	(1.44)
Systematic implementer of home visits	1.13	0.79*	0.85
	(0.25)	(0.08)	(0.13)
Constant	0.00***	0.05***	0.04***
	(0.00)	(0.01)	(0.01)
Student observations	9,194	18,994	11,597
Number of schools	37	74	28

Note: Standard errors are in parentheses.
* $p < 0.05$, ** $p < .01$, *** $p < .001$.

Table A-7. Multilevel Models Testing Home Visit Effects on English Language Arts Proficiency for Individual Districts

Variables	District 1	District 2	District 4
Student-level variables			
English Language Arts proficiency in 2015–16 school year	24.78***	19.53***	17.57***
	(3.11)	(1.25)	(1.29)
Home visit participation in 2016–17 school year	1.34*	0.60	0.96
	(0.17)	(0.18)	(0.14)
Grade level (v. Grade 3)			
4th grade	1.36	1.40*	0.27***
	(0.28)	(0.19)	(0.08)
5th grade	1.61*	1.34*	0.34***
	(0.33)	(0.18)	(0.10)
6th grade	0.85	0.88	0.28***
	(0.17)	(0.10)	(0.07)
7th grade	1.33	1.24	0.78*
	(0.25)	(0.14)	(0.09)
Race (vs. White)			
Asian	1.01	1.77**	1.79**
	(0.56)	(0.33)	(0.39)
African American	0.35**	0.48***	0.68
	(0.13)	(0.06)	(0.15)
Hispanic	0.50	0.60***	1.05
	(0.20)	(0.06)	(0.10)
Other	1.09	0.64**	0.78
	(0.62)	(0.10)	(0.11)
Eligibility for free or reduced-price meals	0.52	0.57***	0.83*
	(0.19)	(0.05)	(0.07)
Participation in special education	0.25***	0.14***	0.27***
	(0.05)	(0.02)	(0.04)
English language learner	0.66*	0.81**	0.21***
	(0.12)	(0.06)	(0.03)
School-level variables			
Average free or reduced-price meals	1.89	0.27	6.15
	(1.67)	(0.24)	(5.99)
Percentage of non-White students	0.03*	1.23	0.02**
	(0.04)	(1.27)	(0.02)
Systematic implementer of home visits	**0.77**	**1.24**	**0.92**
	(0.20)	(0.17)	(0.18)
Constant	7.19*	0.84	3.23*
	(6.75)	(0.27)	(1.80)
Student observations	4,418	10,639	6,827
Number of schools	35	74	28

Notes: Standard errors are in parentheses.
* $p < 0.05$, ** $p < .01$, *** $p < .001$.

Table A-8. Multilevel Models Testing Home Visit Effects on Math Proficiency for Individual Districts

	District 1	District 2	District 4
Student-level variables			
Math proficiency in 2015–16 school year	31.74***	36.11***	27.92***
	(3.89)	(2.74)	(2.35)
Home visit participation in 2016–17 school year	1.14	0.77	1.05
	(0.16)	(0.26)	(0.17)
Grade level (vs. 3rd grade)			
4th grade	1.37	0.74	1.13
	(0.33)	(0.13)	(0.32)
5th grade	2.05**	1.14	0.50*
	(0.49)	(0.20)	(0.14)
6th grade	0.93	0.42***	0.82
	(0.22)	(0.06)	(0.22)
7th grade	0.83	0.79	1.07
	(0.21)	(0.11)	(0.17)
Race (vs. White)			
Asian	0.62	1.47	2.01**
	(0.35)	(0.30)	(0.45)
African American	0.15***	0.45***	0.73
	(0.06)	(0.07)	(0.19)
Hispanic	0.24***	0.60***	1.04
	(0.10)	(0.07)	(0.11)
Other	0.35	0.79	1.06
	(0.21)	(0.14)	(0.16)
Eligibility for free or reduced-price meals	0.54	0.44***	0.87
	(0.22)	(0.04)	(0.08)
Participation in special education	0.53***	0.23***	0.41***
	(0.10)	(0.04)	(0.06)
English language learner	0.76	1.10	0.32***
	(0.15)	(0.10)	(0.05)
School-level variables			
Average of free or reduced-price meals	1.97	0.63	2.77
	(2.03)	(0.71)	(2.63)
Percentage of non-White students	0.04	0.90	0.05*
	(0.07)	(1.18)	(0.06)
Systematic implementer of home visits	0.71	1.34	0.77
	(0.22)	(0.23)	(0.14)
Constant	6.62	0.32**	0.61
	(7.30)	(0.13)	(0.33)
Student observations	4,481	10,661	6,643
Number of schools	35	74	28

Note: Standard errors are in parentheses.
* $p < 0.05$, ** $p < .01$, *** $p < .001$.

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