

Using Behavioral Insights to Improve School Administrative Communications:  
The Case of Truancy Notifications

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## Abstract

Many states mandate districts or schools notify parents when students have missed multiple unexcused days of school. We report a randomized experiment ( $N = 131,312$ ) evaluating the impact of sending parents truancy notifications modified to target behavioral barriers that can hinder effective parental engagement. Modified truancy notifications that used simplified language, emphasized parental efficacy, and highlighted the negative incremental effects of missing school reduced absences by 0.07 days compared to the standard, legalistic, and punitively-worded notification—an estimated 40% improvement over the standard truancy notification. This work illustrates how behavioral insights and randomized experiments can be used to improve administrative communications in education.

## Introduction

Attendance strongly predicts academic success. Students who miss more days of school perform worse academically (Gottfried, 2010; Gershenson, Jacknowitz, & Brannegan, 2017; Gottfried, 2011; Allensworth & Easton, 2007), score lower on reading and math proficiency tests (Balfanz & Byrnes, 2013), and graduate high school at lower rates (Schoeneberger, 2012; Balfanz & Byrnes, 2013). Informed by this, policymakers are increasingly holding schools and districts accountable for ensuring that students attend school. As of 2018, 36 states and the District of Columbia used absenteeism as a metric for evaluating district performance (Sparks, 2018), and seven states tie district funding directly to schools' average daily attendance rates (Jordan & Miller, 2017).

Schools communicate with families in numerous ways to ensure student attendance. In many states, parents and guardians<sup>1</sup> receive truancy notifications (i.e., warning letters) informing them that their child has missed school without a valid or verified excuse. These notifications, which are often state-mandated, generally take a deficit-view of families: they emphasize parental liability and are punitive in nature. Moreover, they tend to be long, difficult to understand, full of legal jargon, and can be perceived as threatening (Lambert, 2017). Despite the widespread use of truancy notifications there is little evidence on how to improve their efficacy.

This manuscript reports a randomized experiment ( $N = 131,312$ ) evaluating the effect of behaviorally-informed improvements to existing state-mandated administrative communications to parents on their child's attendance. These minor changes reduced student absences by 0.07 days, an approximate 40% improvement over the estimated impact of the standard letter. This study illustrates how behavioral insights and randomized experiments can be easily applied to improve the efficacy of administrative communications in education.

## Theoretical Framework

School attendance is compulsory for children between the ages of 7 and 16<sup>2</sup> in all 50 states and the District of Columbia (NCES, 2017). State truancy laws dictate that parents can be held legally responsible for their child's absenteeism. Truancy is defined as missing school without a valid or verified excuse—a so-called “unexcused” absence. Although the precise definition of truancy varies across states, most states require that parents are notified when their

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<sup>1</sup> Henceforth referred to as “parents,” but we acknowledge the wide range of caretakers in a child's life.

<sup>2</sup> Age of required school attendance varies by state; 7 to 16 years is the minimum range for which children are required to attend school in all 50 states.

child is considered truant. To comply with this mandate, many districts send truancy notifications, or warning letters, informing parents that their child has accrued multiple unexcused absences.

Truancy laws generally require districts to include the corresponding legal language in their communications to parents. This language tends to be punitive in nature, highlighting the potential ramifications for parents should they fail to compel their child to attend school. Consequences include large fines, prosecution, and even jail time for the parents or the student. In addition to being long and difficult to understand, parents often find the legal language threatening and offensive (Lambert, 2017).

Research demonstrates that empowering parents as partners in their child's education can positively impact a range of student outcomes including grades, attendance, and test scores (Bergman, 2015; Bergman, Lasky-Fink, & Rogers, 2019; Kraft & Rogers, 2015; Henderson & Mapp, 2002). At the same time, several behavioral barriers can hinder effective parental engagement, particularly around attendance (Damgaard & Nielsen, 2018). First, parents have limited attention to focus on, sort through, and remember all of the information they receive about their child's education (DellaVigna, 2009). When attention is scarce, it is also selective: retention is greater for information that is more salient or easier to understand (Taylor & Fiske, 1978). In particular, written materials that are longer and more complex are difficult to process and can negatively affect recall (Martin & Roberts, 1966). As such, simplifying language and highlighting key points can help focus attention, facilitate information processing, and improve comprehension (Pope, 2007). In the context of truancy notifications, this should increase the likelihood that parents understand, remember, and act upon the information they receive.

Second, over 40% of US adults have limited literacy, which roughly translates to reading at a 6<sup>th</sup> to 8<sup>th</sup> grade reading level or less (NCES, 2003). In urban school districts with high poverty rates and large populations of non-native English-speakers, the percentage of low-literate parents is likely even higher. Low literacy can make it difficult for parents to understand—and thus act upon—complex communications they receive about their child's education, such as truancy notifications, presenting a significant barrier to increased parental engagement (Bohler, Eichenlaub, Litteken, & Wallis, 1996).

Third, parents need to believe that their involvement in their child's education will bring about positive outcomes. Social cognitive theory suggests that people's self-efficacy beliefs, or their beliefs about their abilities to act in ways that will produce desired outcomes, affects the goals they choose to pursue and how much effort they will exert (Bandura, 1977; Bandura 1997). Thus, parents will make decisions about whether and how to engage partly by considering the outcomes their actions will produce (Hoover-Dempsey, Bassler, & Brissie, 1992; Hoover-Dempsey et al., 2005). Schools, in particular, have the capacity to exert significant influence on parents' sense of efficacy for helping their children succeed in school (Hoover-Dempsey et al., 2005). When it comes to improving attendance, communications that make parents feel efficacious in their abilities to help their child attend school more may motivate them to take action.

Finally, studies have shown that parents have upwardly-biased beliefs about their child's performance (Bergman, 2015; Bergman & Chan, 2019). Nearly 90% of parents believe their child's achievement is at or above grade level, despite data showing that only one-third of children actually perform at that level (Learning Heroes, 2018). On attendance specifically, parents consistently underestimate the number of absences their child has accrued and fail to appreciate that even a few absences add up to have real educational consequences (Rogers &

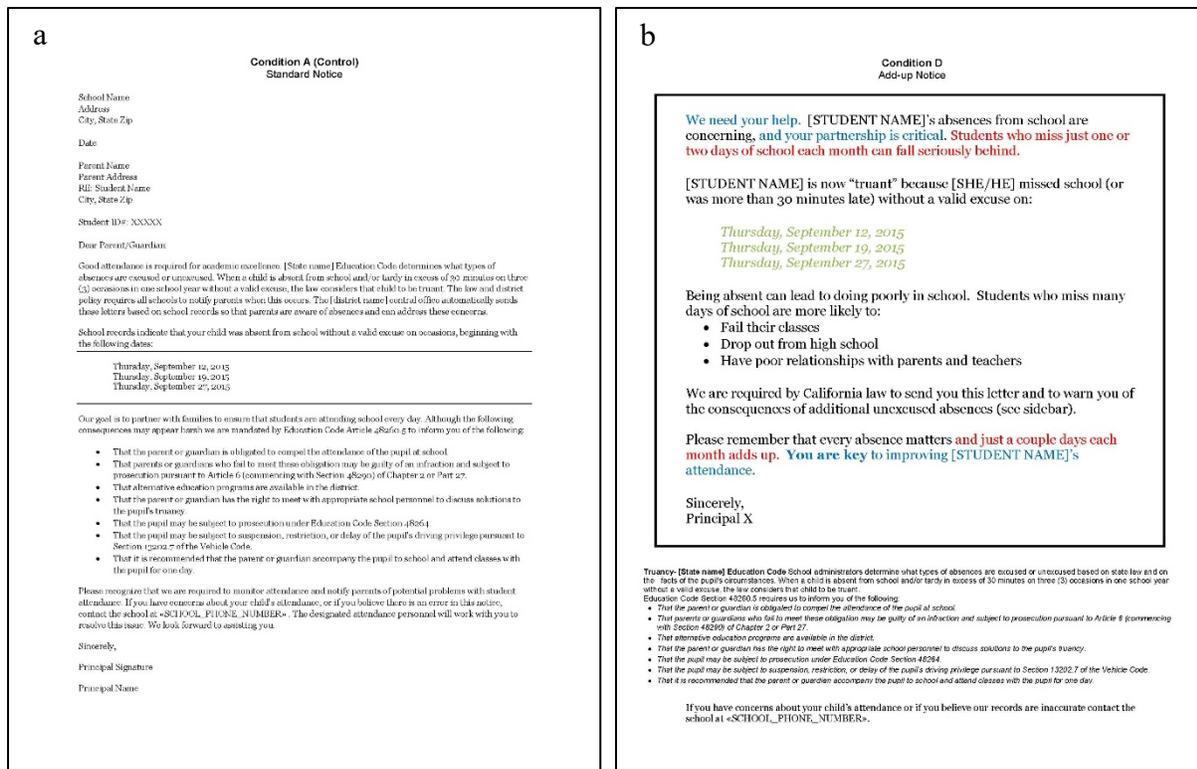
Feller, 2018; Robinson, Lee, Dearing, & Rogers, 2018). This overconfidence in their child's achievement may drive lower parental engagement and involvement.

The combination of limited attention and literacy, feelings of inefficacy, and miscalibrated beliefs impacts parents' ability to process and act upon information they receive about their child's education. Behaviorally-informed interventions that reduce these barriers by providing parents with clear and actionable information have been effective at improving student outcomes in a range of contexts, including attendance (Rogers & Feller, 2018; Robinson, Lee, Dearing, and Rogers, 2018; Damgaard & Nielsen, 2018; Bergman, Lasky-Fink, & Rogers, 2019; Bettinger, Terry Long, Oreopoulos, & Sanbonmatsu, 2012). This experiment builds on prior studies by testing the effect of modifying an existing administrative communication in education to support parents in overcoming these four behavioral barriers.

## **Current Study**

For this study, we partnered with a large urban public-school district that generates and mails truancy notification letters to all parents whose child has been recently truant. The district is located in a state where truancy is defined as being tardy or absent for more than 30-minutes during the school day without a valid excuse on three occasions in one school year. State law mandates that districts notify a student's parent when he or she is classified as truant. In order to comply with this mandate, the district sends truancy notifications via mail once per month. The district's Standard Notice informs parents that their student has been classified as truant, and highlights the potential legal consequences if unexcused absences persist (Figure 1, condition A). It is 382 words, is written at a 10<sup>th</sup> grade reading level, and includes seven bullet points of legally mandated language.

We developed six modified versions of the Standard Notice, and varied the messaging of each to target four known barriers to parental engagement: limited attention; low literacy; lack of efficacy; and the common misbelief that a small number of absences is inconsequential. Each modified notice was written at a 5<sup>th</sup> grade reading level and had a primary message of less than 150 words. See Table 1 for a description of each condition. In light of the four barriers discussed above, we hypothesized that simplifying the truancy notification language, emphasizing parents' role and efficacy, and highlighting the incremental impact of absences would significantly improve subsequent student attendance relative to the Standard Notice.



**Fig. 1. (a)** Standard truancy notice; and **(b)** the most effective modified notice (Condition D), which was modified and simplified using behavioral insights. The Add-up Notice reduced student absences compared to the Standard Notice by 0.07 days in the one month following each truancy notice mailing. All letters were mailed in black and white; colors are only used to illustrate modifications. See SOM for examples of all modified truancy notifications. Red font highlights the “Add-up” language; blue font highlights language emphasizing parental efficacy.

## Overview of Experiment

### Design

From November 2015 to February 2016 we conducted a randomized experiment with 152,047 truant students, each of whom were randomly assigned to receive either the Standard Notice or one of the six modified notices. Because students qualify to receive truancy notices at different times throughout the year, we conducted three waves of random assignment. Our initial eligible universe was comprised of all students in the district who were truant between September and November 2015. Our second cohort was comprised of students who were newly classified as truant as of December 2015, and our third cohort included newly truant students as of January 2016. Each cohort was randomized independently, and our final randomized universe across all three cohorts consisted of 152,047 students.

Within each cohort, random assignment took place at the household level and was stratified by grade level, quartile of previous truancy count, and an indicator for Black/African-American students. All students who shared an address were considered to be part of the same household, and all students in a household in a given randomization cohort were assigned to the same treatment condition. In order to increase our power to detect effects of each modified notice

relative to the Standard Notice, 25% of each randomization cohort was assigned to the control condition.

In each cohort, eligible students were randomly assigned to one of seven conditions (Table 1). In Condition A, students received the Standard Notice that the district routinely sent to all truant students. Condition B simplified the language in the Standard Notice; Conditions C-G included language reinforcing parental efficacy; and conditions D-G added additional language emphasizing the negative incremental effects of missing school. Conditions D-F—the cumulative conditions—targeted all four behavioral barriers: limited attention and low literacy; lack of efficacy; and the common misbelief that a small number of absences is inconsequential.

Condition G also targets all four behavioral barriers, and includes the same language highlighting parental efficacy and the negative incremental effects of absenteeism as in Conditions D-F. However, whereas conditions B-F include a paragraph that lists three potential consequences of poor attendance, Condition G instead includes three bullet points emphasizing the benefits of good attendance in order to test the effect of framing part of the primary message positively instead of negatively (see SOM for full text of each notice). People often pay more attention to and are more motivated by negative information than comparable positive information (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001). Because of this “negativity bias,” prior research has found that a negative or “needs improvement” framing of education information may more effectively motivate behavior change among parents and students (Kraft & Rogers, 2015).

All truancy notifications were sent in Armenian, Chinese, English, Spanish, and Korean, per standard district protocols. Implementation relied exclusively on existing district processes. As mandated by law, the district routinely sent the Standard Notice to all truant students prior to this study. As such, it already had procedures in place for identifying recently truant students, and for generating and mailing truancy notifications. This experiment solely tested the effect of modifying the content of these notifications; no adjustments were made to the processes or burdens associated with sending truancy notifications.

**Table 1.** Treatment conditions

Condition	<i>N</i>	Description	Details
(A) Standard	32,786	Parents received the district’s standard truancy notification letter (see Figure 1).	The Standard Notice is 382 words, is written at a 10 <sup>th</sup> grade reading level, and includes seven bullet points of legally-mandated language on parental obligation and potential ramifications of repeated offense, including legal prosecution.
(B) Simplified	16,375	Parents received a simplified notice that included information on how many unexcused absences their student had accumulated and highlighted the negative consequences of missing school. The legally mandated language was included in fine print at the bottom of the letter.	Each of the modified notices were written at a 5 <sup>th</sup> grade reading level and had a primary message consisting of fewer than 150 words. All state mandated legal language was included in fine print at the bottom of the letter (see Fig. 1 and SOM).
(C) Efficacy	16,348	Parents received the Simplified Notice (condition B) with an added sentence reinforcing parental efficacy.	
(D) Add-up	16,512	Parents received the Efficacy Notice (condition C) with an added sentence emphasizing that 1-2 absences per month adds up and can lead to students falling behind.	
(E) Add-up + superintendent	16,462	Parents received the Add-up Notice (condition D), except the letter was signed by the district superintendent instead of the student’s principal.	
(F) Add-up + tips	16,403	Parents received the Add-up Notice (condition D) with a paper insert listing tips for improving attendance.	
(G) Benefits	16,426	Parents received the Add-up Notice (condition D), but instead of language on the negative consequences of poor attendance, this notice emphasized the benefits of good attendance.	

Notes: The modified truancy notices targeted four known behavioral barriers to parental engagement: (1) limited attention; (2) low literacy; (3) feelings of inefficacy; and (4) the common misbelief that a small number of absences is inconsequential. Condition B targeted the first barrier; condition C targeted the first and second; and Conditions D, E, F—the “cumulative conditions”—targeted all four behavioral barriers.

## *Outcome Measures and Data*

The analyses presented in this manuscript involve routinely collected administrative data from the district's student information system (SIS), including basic demographic information and attendance data. Our primary outcome is the total number of absences accumulated between each truancy notification mailing:

- Round 1: November 1, 2015 – December 8, 2015
- Round 2: December 10, 2015 – January 20, 2016
- Round 3: January 22, 2016 – February 9, 2016

Absences are defined as either excused or unexcused. Excused absences are those that have been verified or authorized by the school administration as falling within one of the state's legally mandated categories of excused absences. All other absences are considered unexcused and can trigger truancy notifications. Our outcome measure considers the sum of excused and unexcused absences for each student in the periods listed above; prior research suggests that results are consistent when examining these outcomes separately (Rogers & Feller, 2018).

At the secondary level, absences are also marked as either a "full" or "partial" day absence. A full day absence is defined as having a recorded absence in all periods in a given day. A partial day absence indicates that a student's attendance record is missing for one or more periods in a given day, and so it is unknown whether the student was present or absent in that period. A partial day absence does *not* mean that the student was only absent for part of the day. If a student is only absent for part of the day (i.e., is marked as present for any period in a given day), this constitutes a half-day absence and is not factored into student absence counts or into our outcome measure. In contrast, partial day absences are treated as full day absences for the purposes of monitoring and reporting attendance, as well as for triggering truancy notifications.

Our pre-registered analysis plan specifies the primary outcome measure as the number of full day absences starting two days after the truancy notifications were mailed until the date of the next notice mailing. However, upon learning that partial day absences are counted as full day absences in official district and state attendance reporting and truancy counts, we updated our analysis plan ex-post to consider the sum of full and partial day absences as our primary outcome. In the interest of transparency, we also present our pre-registered analyses here, although we note that full day absences is not an appropriate outcome measure for secondary students. Sixty-three percent of all absences between November 2015 and February 2016 were partial day absences; by not counting these absences we are ignoring a crucial and considerable source of outcome data.

## *Analytic Plan*

As specified in our pre-registered analysis plan, the final analytic sample excludes students in households that received more than one treatment assignment in a single round due to inconsistencies and inaccuracies in address data, as well as students who were randomized in subsequent rounds from their siblings. For example, if student A received a truancy notification in round 1 and her sibling, student B, received a notice in round 2, we exclude student B from the analysis. We exclude all subsequently randomized siblings regardless of whether the second and/or third randomization assigned the students to different conditions. Because students had a greater likelihood of being assigned to the control condition, the probability that a re-randomized

household would be assigned the same condition in the second or third round was greater for students assigned to the control condition. As a result, if we were to only exclude students who were re-randomized into different conditions, a smaller proportion of control households and students would be excluded, which would introduce bias into our estimates.

Because student absences are positively skewed, we use log-transformed OLS regressions to estimate the average treatment effect of assignment to each condition on student absences. Standard errors are clustered at the household level, and all specifications control for student-level demographic indicators, school level and type (e.g., magnet school; alternative school), language of truancy notification, randomization cohort, student grade level, and a continuous measure of pre-treatment truancy counts. For ease of interpretation, all models are also presented using raw absences as the dependent variable.

### *Sample and Attrition*

In our partner district, 74% of students are Latino, 10% are White, and 9% are African-American. Approximately 84% of students qualify for free- or reduced-price lunch, a common indicator of socioeconomic status. Reflecting overall district demographics, approximately 83% of our experimental universe qualified for free- or reduced-lunch, 12% were Black or African-American, and approximately 50% were Spanish-speaking. On average, students had five unexcused absences prior to randomization. All covariates, including free and reduced lunch, LEP, Black/African-American, truancy count, school type, language, and grade level, were balanced across treatment condition in both the experimental universe and the final analytic sample (see SOM).

All students who were part of the randomized universe, but could not be found in the end-of-year data provided by the district are assumed to have left the district and are excluded from the final analysis. This represents less than 2% of students ( $N = 2,071$ ), and is balanced evenly across conditions ( $\chi^2(6) = 6.52, p = .37$ ). We also exclude 4,356 students (3%) in households that were inadvertently randomized to different conditions in the same randomization cohort due to address discrepancies ( $\chi^2(6) = 4.08, p = .67$ ), as well as 14,308 students (9.4%) who were randomized in a subsequent round from their sibling ( $\chi^2(6) = 1.11, p = .98$ ). In all, we exclude about 14% of our experimental universe and are left with a final analytic sample of 131,312 (Table 2). Overall attrition is balanced across conditions ( $\chi^2(6) = 2.21, p = .90$ ).

**Table 2.** Attrition

	Total experimental universe	Not in outcome data	Incorrectly randomized	Second randomization	Final analytic sample
(a) Control	38,005	522	1,084	3,613	32,786
	100.0%	1.4%	2.9%	9.5%	86.3%
(b) Simplified	18,963	268	529	1,791	16,375
	100.0%	1.4%	2.8%	9.4%	86.4%
(c) Efficacy	18,957	289	546	1,774	16,348
	100.0%	1.5%	2.9%	9.4%	86.2%
(d) Add-up	19,125	255	575	1,783	16,512
	100.0%	1.3%	3.0%	9.3%	86.3%
(e) Add-up + Superintendent	18,998	240	539	1,757	16,462
	100.0%	1.3%	2.8%	9.2%	86.7%
(f) Add-up + Tips	19,018	255	570	1,790	16,403
	100.0%	1.3%	3.0%	9.4%	86.2%
(g) Benefits	18,981	242	513	1,800	16,426
	100.0%	1.3%	2.7%	9.5%	86.5%
Total	152,047	2,071	4,356	14,308	131,312
	100.0%	1.4%	2.9%	9.4%	86.4%

## Results

Table 3 presents the impact of each condition relative to the Standard Notice on raw and log-transformed absences. The three cumulative conditions used simplified language, emphasized parental efficacy, and highlighted the negative incremental effects of absences. Each of these conditions reduced absences by about 2% in the month after receiving the notice ( $SE = 0.007$ , all log-transformed  $ps < .05$ ), or by approximately 0.07 days from the Standard Notice mean of 3.5 absences. Pooling the three cumulative conditions and evaluating their effect versus the Standard Notice yields almost identical results (Table 4). The other three conditions—Simplified (B), Efficacy (C), and Benefits (G)—did not significantly reduce absences relative to the Standard Notice. All results are robust to removing outliers and to a negative binomial specification (see SOM).

Testing the effect of each modified notice on our pre-registered outcome of full day absences only (see SOM), we find smaller, but still significant, effects of the Add-up (D) and Add-up + Superintendent Notice (E). The Add-up + Tips (F) condition alone did not have a significant effect on full day absences, but the three cumulative conditions pooled reduced full day absences by 1.3% (log-transformed  $p < .001$ ). As we note above, however, this is not an appropriate outcome measure for secondary school students as it ignores nearly two-thirds of all accrued absences. As such, the rest of this discussion focuses on the sum of full and partial day absences.

Approximately 70% of the total effect of the modified notices in the cumulative conditions accrued in the first ten school days following each mailing. Receiving one of the cumulative condition notices reduced absences in the ten school days following each mailing by an average of 1.8% or 0.05 days relative to the Standard Notice mean of 1.9 days (all log-

transformed  $ps < .05$ ; Table 5). This suggests that the effect of receiving a truancy notification may wane quickly.

Overall, assignment to one of the cumulative conditions reduced absences by 0.02 standard deviations (SD) between truancy notice mailings. While this is considered a small effect for education interventions, it should be evaluated considering the intensity and cost of the intervention (Kraft, 2020). Accordingly, the reduction in student absences comes from relatively simple modifications to an existing administrative communication that the district is mandated by law to send regardless of its impact (or lack thereof) on absenteeism. This is also a realistic effect size for a behavioral intervention and large-scale field experiment (see, e.g., Cheung & Salvin, 2016).

To put this effect into context, other published mail-based absence-reduction interventions have reduced absences on average by 0.2 days per mailing (Rogers & Feller, 2018; Robinson, Lee, Dearing, & Rogers, 2018). If we assume the district's Standard Notice is as effective as these other mail-based interventions—although we expect it is likely less effective—then the additional days of attendance generated by the cumulative conditions represent a nearly 40% improvement over the effect of the Standard Notice.<sup>3</sup> This is a lower bound on the estimated effect. If, as we might assume, the Standard Notice has a smaller effect than these curated and carefully developed attendance interventions, then the effect of the modified truancy notifications represents more than a 40% improvement over the effect of the Standard Notice.

Examining the marginal effect of each modified notice, the three cumulative conditions significantly reduced absences relative to the Benefits Notice by about 2% (log-transformed  $ps < .05$ ). This is in line with prior experimental findings (Kraft & Rogers, 2015) that have found positive framing to be less effective than negative framing in an education context. We find no other significant marginal effects of each modified notice relative the other modified notices (see SOM). By design, the modified notices corresponding with each condition are additive—Condition C builds on Condition B, and Condition D builds on condition C. Conditions E-G all also build on Condition C by each testing a slightly modified version of the Condition D letter. While the Simplified Notice alone (Condition B) did not have a significant effect relative to the Standard Notice, this design does not allow us to isolate the effect of the other language modifications. As a result, we can conclude that the combination of simplification, efficacy, and add-up language yields an improvement over the Standard Notice, but we are unable to determine which specific modifications are driving the effect of the cumulative conditions.

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<sup>3</sup> The average treatment effect (ATE) of the pooled cumulative conditions is 0.074 days, relative to the Standard Notice (see Table 4). Assuming the district's Standard Notice reduces absences in the post-notification period by 0.2 days per mailing, then the effect of the modified cumulative notifications reflects a 37% improvement (0.074 days/0.2 days) over the effect of the Standard Notice in the post-notification period. If the Standard Notice is, say, half as effective as other proven absenteeism communications, then the effect of the modified cumulative notifications represents *more* than a 37% improvement (e.g., 0.074/.1 days = 74%) over the effect of the Standard Notice.

**Table 3. Total post-mailing absences**

VARIABLES	(1) Absences	(2) Log absences
(b) Simplified	-0.054 (0.035)	-0.009 (0.007)
(c) Efficacy	-0.021 (0.035)	-0.006 (0.007)
(d) Add-up	-0.076** (0.038)	-0.021*** (0.008)
(e) Add-up + Superintendent	-0.076** (0.035)	-0.022*** (0.007)
(f) Add-up + Tips	-0.068* (0.036)	-0.018** (0.007)
(g) Benefits	0.016 (0.035)	0.000 (0.007)
Observations	131,312	131,312
R-squared	0.367	0.305
Mean for Control	3.512	1.115

Notes: OLS estimates of (1) absences and (2) log-absences in the month following a truancy notification mailing regressed on an indicator for condition assignment. Reference group received the Standard Notice. Absences include full and partial day absences. Covariates include indicators for free and reduced lunch, limited English proficiency (LEP), randomization cohort, grade level, Black/African-American, type of school attended, home language, and pre-randomization truancy count. Robust standard errors clustered by household. \*\*\* implies statistical significance at 1% level, \*\* at 5% level, \* at 10% level.

**Table 4. Total post-mailing absences, pooled cumulative conditions**

VARIABLES	(1) Absences	(2) Log absences
Cumulative conditions - pooled	-0.074*** (0.027)	-0.020*** (0.005)
Observations	82,163	82,163
R-squared	0.361	0.301
Mean for Control	3.514	1.116

Notes: OLS estimates of (1) absences and (2) log-absences in the month following a truancy notification mailing regressed on an indicator for assignment to one of the three cumulative conditions (D-F). Reference group received the Standard Notice. Absences include full and partial day absences. Covariates include indicators for free and reduced lunch, limited English proficiency (LEP), randomization cohort, grade level, Black/African-American, type of school attended, home language, and pre-randomization truancy count. Robust standard errors clustered by household. \*\*\* implies statistical significance at 1% level, \*\* at 5% level, \* at 10% level.

**Table 5. Absences in the 10 school days post-mailing**

VARIABLES	(1) Absences	(2) Log absences
(b) Simplified	-0.036* (0.019)	-0.009 (0.006)
(c) Efficacy	-0.006 (0.019)	-0.003 (0.006)
(d) Add-up	-0.057*** (0.020)	-0.021*** (0.006)
(e) Add-up + Superintendent	-0.044** (0.020)	-0.018*** (0.006)
(f) Add-up + Tips	-0.051*** (0.019)	-0.016** (0.006)
(g) Benefits	0.004 (0.020)	0.000 (0.006)
Observations	131,152	131,152
R-squared	0.277	0.211
Mean for Control	1.854	0.781

Notes: OLS estimates of absences in the 10 school days following a truancy notification mailing regressed on an indicator for condition assignment. Reference group received the Standard Notice. Absences include full and partial day absences. Covariates include indicators for free and reduced lunch, limited English proficiency (LEP), randomization cohort, grade level, Black/African-American, type of school attended, home language, and pre-randomization truancy count. Robust standard errors clustered by household. \*\*\* implies statistical significance at 1% level, \*\* at 5% level, \* at 10% level.

## *Heterogeneity*

In exploratory analyses, we evaluated the effect of treatment assignment on our primary outcome for high school students (grades 9-12) separately. We explore this subgroup for two reasons. First, previous work has shown larger effects of information-based parent engagement interventions for older students (Bergman, 2015; Bergman & Chan, 2019; Bergman, Lasky-Fink, & Rogers, 2019). Second, the modified notices included language emphasizing that students with poor attendance are more likely to drop out from high school and fail their classes—outcomes that are likely more salient for parents of older students, and may therefore result in increased attention and action among this population. The three pooled cumulative conditions reduced absences by about 2.7% among high school students (log-transformed  $p < .001$ ; see SOM) versus 1.2% among elementary and middle school students (log-transformed  $p < .10$ ). Although the interaction between high school and assignment to treatment is not significant, these findings suggest that the impact of the modified notices may be larger among older students. While this aligns with evidence from other parental engagement interventions, it diverges from other mail-based attendance interventions that have found constant effects across grade levels (Rogers & Feller, 2018; Robinson, Lee, Dearing, & Rogers, 2018). This juxtaposition deserves more detailed treatment in future research.

## **Discussion**

This study presents a low-cost, scalable intervention that uses behavioral insights to improve state-mandated truancy notifications. The most effective modified notices used 60% fewer words than the Standard Notice, highlighted parents' role in reducing student absences, and reminded parents that absences can add-up to have negative consequences on academic performance. These adjustments reduced the number of days a student was absent in the month following receipt of the truancy notice by approximately 2%. This is the equivalent of increasing the impact of the standard truancy notification by an estimated 40%. While the average per-student effect is modest, sending the most effective modified notice to all truant students could generate tens of thousands of additional days of attendance in a single state.

This research offers two important lessons for policymakers. First, simplification may be a necessary, but insufficient, step toward increasing parental engagement in their child's education. The simplified truancy notice alone did not meaningfully reduce absences. However, combining simplified language with messaging that reinforced parental efficacy and emphasized the potential cumulative consequences of periodic absences yielded improvements in student attendance.

Second, using behavioral insights to modify educational communications can impact student outcomes at low- or no-cost. Our experiment improved attendance by modifying existing communications, without adjusting administrative burdens or imposing additional costs on the district. Experimental evidence shows that implementing and supporting attendance interventions beyond a district's normal practice, such as attendance mailers (Rogers & Feller, 2018; Robinson, Lee, Dearing, & Rogers, 2018), text message (Kalil, Mayer, & Gallegos, 2019), or attendance mentors (Guryan et al., 2017), can positively affect student attendance. This study shows that there are also gains to be made from simple and virtually costless modifications to existing institutional processes.

One important limitation is that our study design does not allow us to fully disentangle the effects of each of the language modifications. While simplifying the language was insufficient on its own (condition B), we do not know whether the add-up language would have been effective without simplification. The current study lacks the design elements needed to better understand and explain the nuanced differences between the three cumulative conditions. Follow-up studies should tease apart these effects and make an effort to better understand the different mechanisms at play. Additionally, given recent evidence on the importance of both modality and timing in developing effective behavioral interventions (Bergman, Lasky-Fink, & Rogers, 2018; Bergman & Chan, 2019; Cortes et al., 2019), future research should consider whether adjusting the timing or frequency of truancy notification mailings can further increase their efficacy.

Reducing student absenteeism on a broad scale requires a combination of interventions. This intervention is not a standalone solution, but it offers a virtually costless way to generate modest improvements in student attendance, thereby freeing district resources to pursue more intensive interventions aimed at addressing the deep structural factors that contribute to absenteeism.

### **Supplementary Materials**

The supplemental online materials include supplementary analyses, results, and figures. Restrictions apply to the use and availability of the data used to support the findings of this study, so they are not publicly available.

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