

Supplementary Materials for
Using Behavioral Insights to Improve Truancy Notifications

Jessica Lasky-Fink
University of California, Berkeley

Carly Robinson
Harvard Graduate School of Education

Hedy Chang
Attendance Works

Todd Rogers
Harvard Kennedy School

Supplementary Methods

Design

This experiment took place in a large, urban public-school district. Seventy-four percent of the district's students are Latino, 10% are White, and 9% are African-American. Approximately 84% of students qualify for free- or reduced-lunch, a common indicator of socioeconomic status.

In this context, truancy is defined as absence from school without a valid excuse for three full days in one school year, or being tardy or absent for more than any 30-minute period 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 or guardian¹ when he or she is classified as truant. In order to comply with this mandate, the district sends truancy notifications—letters addressed to the parent or guardian of a truant student informing them of their obligation to compel their child's attendance at school and the potential ramifications if they fail to meet these obligations, including legal prosecution.

The district's standard truancy notification letter (see Fig. S1) is 382 words, is written at a 10th grade reading level and includes seven bullet points of legally mandated language. In partnership with the district, we developed six modified truancy notifications, each of which leveraged insights from behavioral science to simplify and improve the message. Specifically, we used behavioral insights to target three known barriers to parental engagement: limited attention, miscalibrated beliefs, and low literacy (Rogers & Feller, 2018; Robinson, Lee, Dearing & Rogers, 2018). In contrast to the Standard Notice, the improved versions were written at a 5th grade reading level and had approximately 150 words (see Fig. S2-8). All mandated legal language was included in fine print at the bottom of the letter. See Table 1 in the main text for a full description of each condition.

During the 2015-2016 school year, we tested the effect of each modified truancy notice relative to the Standard Notice on subsequent student attendance in a large-scale randomized experiment. 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 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. Our final randomized universe across all three cohorts consisted of 152,047 students (see Table S1).

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. We assigned 25% of each randomization cohort to the control condition in order to increase our power to detect effects of each modified notice relative to the Standard Notice.

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

Eligible students were assigned to one of seven conditions:

- a. Control: Parents received the Standard Notice (see Fig. S1), which was written at a 10th grade reading level and included 368 words.
- b. Simplified: Parents received a simplified truancy 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 (Fig. S2).
- c. Efficacy: Parents received the Simplified Notice (condition B) with an added sentence reinforcing parental efficacy (Fig. S3).
- d. Add-up: 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 (Fig. S4).
- e. Add-up + Superintendent: Parents received the Add-up Notice (condition D), except the letter was signed by the district superintendent instead of the student's principal (Fig. S5).
- f. Add-up + Tips: Parents received the Add-up Notice (condition D) with a paper insert listing tips for improving attendance (Fig. S6).
- g. Benefits: Parents received the Add-up Notice (condition D), but instead of language on the negative consequences of poor attendance, this letter emphasized the benefits of good attendance (Fig. S7).

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 and each modified notice (Bergman, Lasky-Fink, & Rogers, 2019; Bettinger, Terry Long, Oreopoulos, & Sanbonmatsu, 2012).

Data

All data used in these analyses come from the district's student information system (SIS) and involve routinely collected administrative data including basic demographic information and attendance data. Our primary outcome is the number of absences accrued between each truancy notification mailing, as follows:

- Round 1: 11/1/15-12/8/15
- Round 2: 12/10/15-1/20/16
- Round 3: 1/22/16-2/9/16

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. Additionally, both full and partial day absences are tracked. At the elementary level, students can only accrue full day absences. At the secondary level, a full day absence is defined as missing all periods in a given day. A partial day absence is defined as missing one or more class period, but fewer than all periods, in a given day, or as being more than 30 minutes late to one or more periods in a given day.

Analysis

Post-randomization exclusion criteria

Prior to conducting this study, we pre-registered an analysis plan on *Open Science Framework* (OSF; <https://osf.io/snf9z/>). As outlined in the analysis plan, each round was randomized independently at the household level. Students who shared an address were considered to be part of the same household. However, some students in the same household were inadvertently randomized to different conditions in the same round due to inconsistencies and inaccuracies in the address data. As such, we exclude all students in households that received more than one treatment assignment in a single round (Table S2). Additionally, we exclude 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 (Table S1), the probability that a re-randomized household would be assigned the same condition in the second 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.

Outcome measures

Our pre-registered analysis plan specifies the primary outcome measure as the number of full day absences starting two days after the truancy notification was mailed until the date of the next notice mailing. However, both full and partial day unexcused absences count toward truancy counts and can trigger truancy notifications. Thus, the total number of full and partial day absences is a more meaningful and policy-relevant outcome measure. As such, our primary analysis, which is presented in the main text, deviates from the pre-registered analysis plan by considering the sum of each student's full and partial day absences as the dependent variable. However, we also present and discuss all pre-registered analyses here.

Hypotheses and regression specifications

Our pre-registered analysis plan outlines six main hypotheses:

- H1: The Simplified Notice will induce lower absence rates than the Standard Notice.
- H2: The Efficacy Notice will induce lower absence rates than the Simplified Notice.
- H3: The Add-up Notice will induce lower absence rates than the Efficacy Notice.
- H4: The Add-up + Superintendent Notice will induce lower absence rates than the Add-up Notice.
- H5: The Add-up + Tips Notice will induce lower absence rates than the Add-up Notice.
- H6: The Benefits Notice will induce lower absence rates than the Add-up Notice.

These six hypotheses focus on the additive effects of each modified notice. However, by transitive properties, the implicit hypothesis—which forms the basis of this manuscript—is that each modified notice is also more effective than the Standard Notice. As such, the analyses presented in this paper evaluate the effect of each modified notice relative to the Standard Notice.

Because of the positive skewness of student absences, we use log-transformed OLS regressions to evaluate the effect of treatment assignment on student attendance. All standard errors are clustered at the household level, and all specifications include the following covariates: free and reduced lunch indicator, limited English proficiency (LEP) indicator, school type, language of truancy notification, randomization cohort, grade level, indicator for Black/African-American, and a continuous measure of previous year's truancy count. All models are also presented using raw absences as a dependent variable for ease of interpretation.

In addition to our primary models, we present a series of robustness checks including log-transformed OLS models that exclude outliers (Table S9, S10), and negative binomial specifications (Table S11).

Supplementary Results

Attrition

Across all three randomization cohorts, our final universe consisted of 152,047 students (see Table S1). All students who were part of the randomized universe, but could not be found in the end-of-year data set 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%) who were incorrectly randomized, and 14,308 students (9.4%) who were randomized after a sibling—again, balanced across conditions ($\chi^2(6)=4.08$, $p=.67$; $\chi^2(6)=1.11$, $p=.98$). In all, we exclude about 14% of our experimental universe and are left with a final analytic sample of 131,312 (Table S2). Overall attrition is also balanced across conditions ($\chi^2(6)=2.21$, $p=.90$).

Sample

As shown in Table S3, all covariates, including free and reduced lunch, LEP, Black/African-American, truancy count, school type, language, and grade level, were balanced across treatment assignment in the final analytic sample. Reflecting overall district demographics (see main text), approximately 80% of our experimental universe qualified for free- or reduced-price lunch, 12% were Black or African-American, and approximately 50% were Spanish-speaking.

Results

Table S4 presents estimates of the effect of assignment to each condition on full and partial day absences. In the month after receiving the truancy notifications, all three Add-up Notices reduced absences by 2% from the Standard Notice condition mean of 3.5 days. Contrary to our pre-

registered hypotheses, there was no difference in student absences across the three Add-up conditions. Combined, the three Add-up conditions reduced full and partial day absences by about 1% in the month following the notice mailing (Table S5). The other three conditions—Simplified (B), Efficacy (C), and Benefits (G)—did not significantly reduce post-mailing absences relative to the Standard Notice.

When evaluating full day absences only, the effects of two of the Add-up Notices—Add-up (D) and Add-up + Superintendent (E)—are smaller, but still significant, as shown in Table S6. The third Add-up condition, Add-up + Tips (F), has no significant effect on full day absences. However, when pooled, the three Add-up conditions have a significant effect on full day absences (Table S7).

The timing of when the notices were sent also seems to matter. Receiving one of the Add-up Notices resulted in a 3% reduction in absences in the ten school days following each mailing relative to the control condition mean of 1.9 days (Table S8). This suggests that the positive effect of truancy notifications on student attendance wanes quickly.

All results are robust to removing outliers (see Tables S9 and S10) and to a negative binomial specification (see Table S11).

Supplementary Discussion

Limitations and Future Research

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. Similarly, while we find consistently significant effects of both the Add-up and Add-up + Superintendent conditions, the effects of the Add-up + Tips Notice relative to the Standard Notice are mixed. We see a significant effect of the Add-up + Tips Notice relative to the Standard Notice on full and partial day absences, but when using only full day absences as the outcome measure, the Add-up + Tips Notice does not appear to have a significant impact on attendance relative to the Standard Notice. The current study lacks the statistical power and design elements needed to better understand and explain the nuanced differences between the three Add-up 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), future research should consider whether adjusting the timing or frequency of truancy notification mailings can further increase their efficacy.

Supplementary Tables

Table S1. Sample size

	Randomization cohort			Total
	1	2	3	
(a) Control	18,237	12,855	6,913	38,005
	25.0%	25.0%	24.9%	25.0%
(b) Simplified	9,083	6,412	3,468	18,963
	12.5%	12.5%	12.5%	12.5%
(c) Efficacy	9,082	6,405	3,470	18,957
	12.5%	12.5%	12.5%	12.5%
(d) Add-up	9,154	6,493	3,478	19,125
	12.6%	12.6%	12.5%	12.6%
(e) Add-up + Superintendent	9,123	6,416	3,459	18,998
	12.5%	12.5%	12.5%	12.5%
(f) Add-up + Tips	9,141	6,431	3,446	19,018
	12.5%	12.5%	12.4%	12.5%
(g) Benefits	9,079	6,400	3,502	18,981
	12.5%	12.5%	12.6%	12.5%
Total	72,899	51,412	27,736	152,047
	100%	100%	100%	100%

Table S2. 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%

Table S3. Balance of final analytic sample

Level	(a) Control	(b) Simplified	(c) Efficacy	(d) Add-up	(f) Add-up + Superint.	(g) Add-up + Tips	(e) Benefits	p-value
N	32786	16375	16348	16512	16462	16403	16426	
Free & reduced lunch	26713 (81.5%)	13280 (81.1%)	13290 (81.3%)	13464 (81.5%)	13402 (81.4%)	13328 (81.3%)	13351 (81.3%)	0.95
Limited English Proficiency	7223 (22.0%)	3581 (21.9%)	3578 (21.9%)	3606 (21.8%)	3601 (21.9%)	3711 (22.6%)	3533 (21.5%)	0.36
Black/African-American	4188 (12.8%)	2112 (12.9%)	2120 (13.0%)	2105 (12.7%)	2074 (12.6%)	2072 (12.6%)	2083 (12.7%)	0.95
Truancy count, median (IQR)	4 (3, 6)	4 (3, 6)	4 (3, 6)	4 (3, 6)	4 (3, 6)	4 (3, 6)	4 (3, 6)	1.00
School type								
Community Day School	156 (0.5%)	76 (0.5%)	61 (0.4%)	83 (0.5%)	64 (0.4%)	71 (0.4%)	79 (0.5%)	
Continuation High School	66 (0.2%)	38 (0.2%)	34 (0.2%)	35 (0.2%)	23 (0.1%)	30 (0.2%)	37 (0.2%)	
Elementary School	6799 (20.7%)	3429 (20.9%)	3420 (20.9%)	3428 (20.8%)	3384 (20.6%)	3396 (20.7%)	3391 (20.6%)	
Magnet Center - Elementary	168 (0.5%)	63 (0.4%)	86 (0.5%)	82 (0.5%)	72 (0.4%)	83 (0.5%)	83 (0.5%)	
Magnet Center – High school	158 (0.5%)	68 (0.4%)	68 (0.4%)	82 (0.5%)	63 (0.4%)	56 (0.3%)	85 (0.5%)	
Magnet Center – Self- contained elementary	263 (0.8%)	143 (0.9%)	117 (0.7%)	125 (0.8%)	148 (0.9%)	144 (0.9%)	132 (0.8%)	
Magnet Center – Self- contained middle school	286 (0.9%)	109 (0.7%)	149 (0.9%)	127 (0.8%)	141 (0.9%)	112 (0.7%)	154 (0.9%)	
Magnet Center – Self- contained high school	783 (2.4%)	433 (2.6%)	427 (2.6%)	394 (2.4%)	436 (2.6%)	383 (2.3%)	446 (2.7%)	0.34
Middle School	6769 (20.6%)	3342 (20.4%)	3357 (20.5%)	3448 (20.9%)	3438 (20.9%)	3358 (20.5%)	3380 (20.6%)	
Opportunity Schools/units	99 (0.3%)	53 (0.3%)	49 (0.3%)	44 (0.3%)	46 (0.3%)	54 (0.3%)	50 (0.3%)	
Primary Center	55 (0.2%)	30 (0.2%)	26 (0.2%)	30 (0.2%)	23 (0.1%)	28 (0.2%)	26 (0.2%)	
Senior High School	15309 (46.7%)	7583 (46.3%)	7553 (46.2%)	7711 (46.7%)	7657 (46.5%)	7715 (47.0%)	7593 (46.2%)	
Span Magnet	381 (1.2%)	193 (1.2%)	186 (1.1%)	147 (0.9%)	153 (0.9%)	182 (1.1%)	181 (1.1%)	
Span Schools (not Magnets)	1441 (4.4%)	795 (4.9%)	791 (4.8%)	756 (4.6%)	794 (4.8%)	760 (4.6%)	762 (4.6%)	
Special Education	49 (0.1%)	17 (0.1%)	21 (0.1%)	19 (0.1%)	17 (0.1%)	26 (0.2%)	25 (0.2%)	
Unknown	4 (<1%)	3 (<1%)	3 (<1%)	1 (<1%)	3 (<1%)	5 (<1%)	2 (<1%)	
Language of Truancy Notice								
Armenian	141 (0.4%)	63 (0.4%)	59 (0.4%)	59 (0.4%)	67 (0.4%)	72 (0.4%)	72 (0.4%)	
Chinese	29 (0.1%)	14 (0.1%)	13 (0.1%)	12 (0.1%)	18 (0.1%)	9 (0.1%)	19 (0.1%)	
English	16331 (49.8%)	8198 (50.1%)	8219 (50.3%)	8267 (50.1%)	8173 (49.6%)	8202 (50.0%)	8199 (49.9%)	0.97
Korean	122 (0.4%)	59 (0.4%)	66 (0.4%)	53 (0.3%)	52 (0.3%)	53 (0.3%)	58 (0.4%)	
Spanish	16163 (49.3%)	8041 (49.1%)	7991 (48.9%)	8121 (49.2%)	8152 (49.5%)	8067 (49.2%)	8078 (49.2%)	
Randomization cohort								
1	17466 (53.3%)	8725 (53.3%)	8698 (53.2%)	8766 (53.1%)	8738 (53.1%)	8727 (53.2%)	8732 (53.2%)	1.00
2	10142 (30.9%)	5041 (30.8%)	5091 (31.1%)	5135 (31.1%)	5122 (31.1%)	5076 (30.9%)	5085 (31.0%)	

3	5178 (15.8%)	2609 (15.9%)	2559 (15.7%)	2611 (15.8%)	2602 (15.8%)	2600 (15.9%)	2609 (15.9%)	
Grade level								
K	443 (1.4%)	214 (1.3%)	221 (1.4%)	212 (1.3%)	218 (1.3%)	229 (1.4%)	221 (1.3%)	
1	1485 (4.5%)	745 (4.5%)	730 (4.5%)	734 (4.4%)	733 (4.5%)	716 (4.4%)	754 (4.6%)	
2	1444 (4.4%)	722 (4.4%)	699 (4.3%)	716 (4.3%)	716 (4.3%)	712 (4.3%)	704 (4.3%)	
3	1308 (4.0%)	666 (4.1%)	675 (4.1%)	682 (4.1%)	680 (4.1%)	647 (3.9%)	657 (4.0%)	
4	1365 (4.2%)	688 (4.2%)	666 (4.1%)	667 (4.0%)	662 (4.0%)	701 (4.3%)	673 (4.1%)	
5	1191 (3.6%)	629 (3.8%)	630 (3.9%)	629 (3.8%)	592 (3.6%)	633 (3.9%)	607 (3.7%)	
6	2021 (6.2%)	981 (6.0%)	1018 (6.2%)	1020 (6.2%)	1037 (6.3%)	994 (6.1%)	1017 (6.2%)	1.00
7	2871 (8.8%)	1400 (8.5%)	1456 (8.9%)	1433 (8.7%)	1396 (8.5%)	1394 (8.5%)	1426 (8.7%)	
8	3095 (9.4%)	1520 (9.3%)	1524 (9.3%)	1535 (9.3%)	1568 (9.5%)	1542 (9.4%)	1541 (9.4%)	
9	4986 (15.2%)	2485 (15.2%)	2498 (15.3%)	2522 (15.3%)	2518 (15.3%)	2475 (15.1%)	2503 (15.2%)	
10	5167 (15.8%)	2593 (15.8%)	2560 (15.7%)	2598 (15.7%)	2608 (15.8%)	2630 (16.0%)	2610 (15.9%)	
11	4087 (12.5%)	2066 (12.6%)	2032 (12.4%)	2105 (12.7%)	2048 (12.4%)	2065 (12.6%)	2043 (12.4%)	
12	3323 (10.1%)	1666 (10.2%)	1639 (10.0%)	1659 (10.0%)	1686 (10.2%)	1665 (10.2%)	1670 (10.2%)	

Table S4. Primary outcomes: full + partial day absences

VARIABLES	(1)	(2)
	Absence	Log absence
(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 S5. Primary outcomes, pooled Add-up vs. control

VARIABLES	(1) Absence	(2) Log absence
Add-up - 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 primary 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 S6. Full day absences only

VARIABLES	(1) Absence	(2) Log absence
(b) Simplified	-0.015 (0.020)	-0.002 (0.006)
(c) Efficacy	-0.008 (0.020)	-0.003 (0.006)
(d) Add-up	-0.038* (0.020)	-0.014** (0.006)
(e) Add-up + Superintendent	-0.035* (0.020)	-0.016*** (0.006)
(f) Add-up + Tips	-0.007 (0.020)	-0.008 (0.006)
(g) Benefits	0.004 (0.020)	-0.000 (0.006)
Observations	131,312	131,312
R-squared	0.143	0.130
Mean for Control	1.188	0.520

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 day absences only. 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 S7. Full day absences, pooled Add-up vs. control

VARIABLES	(1) Absence	(2) Log absence
Add-up pooled	-0.027* (0.015)	-0.013*** (0.005)
Observations	82,163	82,163
R-squared	0.141	0.128
Mean for Control	1.188	0.520

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 primary conditions (D-F). Reference group received the Standard Notice. Absences include full day absences only. 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 S8. 10 days post-notice mailing

VARIABLES	(1)	(2)
	Full + partial 10 days	Full + partial 10 days
(b) Simplified	-0.036* (0.019)	
(c) Efficacy	-0.006 (0.019)	
(d) Add-up	-0.057*** (0.020)	
(e) Add-up + Superintendent	-0.044** (0.020)	
(f) Add-up + Tips	-0.051*** (0.019)	
(g) Benefits	0.004 (0.020)	
Add-up - pooled		-0.051*** (0.015)
Observations	131,152	82,059
R-squared	0.277	0.270
Mean for Control	1.854	1.855

Notes: OLS estimates of absences in the 10 school days following a truancy notification mailing regressed on (1) an indicator for condition assignment, or (2) an indicator for assignment to one of the three primary 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 S9. Excluding outliers

VARIABLES	(1)	(2)	(3)	(4)
	Full	Full + partial	Full log	Full + partial log
(b) Simplified	-0.016 (0.015)	-0.044 (0.033)	-0.002 (0.006)	-0.009 (0.007)
(c) Efficacy	-0.011 (0.015)	-0.011 (0.033)	-0.003 (0.006)	-0.005 (0.007)
(d) Add-up	-0.031** (0.016)	-0.074** (0.036)	-0.014** (0.006)	-0.023*** (0.008)
(e) Add-up + Superintendent	-0.033** (0.015)	-0.074** (0.033)	-0.016*** (0.006)	-0.022*** (0.007)
(f) Add-up + Tips	-0.034** (0.015)	-0.069** (0.034)	-0.011** (0.006)	-0.018** (0.007)
(g) Benefits	-0.016 (0.015)	0.001 (0.033)	-0.005 (0.006)	-0.002 (0.007)
Observations	125,285	125,285	125,285	125,285
R-squared	0.079	0.324	0.086	0.277
Mean for Control	0.946	3.162	0.460	1.060

Notes: OLS estimates of (1-2) absences and (3-4) 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 day absences only (columns 1, 2) and full and partial day absences (columns 3, 4). Outliers are students whose total absences are more than two standard deviations above the mean. 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 S10. Excluding outliers, pooled Add-up vs. control

VARIABLES	(1) Full	(2) Full + partial	(3) Full log	(4) Full + partial log
Add-up - pooled	-0.033*** (0.011)	-0.073*** (0.025)	-0.014*** (0.004)	-0.021*** (0.005)
Observations	78,425	78,425	78,425	78,425
R-squared	0.077	0.318	0.084	0.273
Mean for Control	0.946	3.165	0.461	1.061

Notes: OLS estimates of (1-2) absences and (3-4) log-absences in the month following a truancy notification mailing regressed on an indicator for assignment to one of the three primary conditions (D-F). Reference group received the Standard Notice. Absences include full day absences only (columns 1, 2) and full and partial day absences (columns 3, 4). Outliers are students whose total absences are more than two standard deviations above the mean. 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 S11. Negative binomial

VARIABLES	(1) Full	(2) Full	(3) Full + partial	(4) Full + partial	(5) 10 days	(6) 10 days
(b) Simplified	-0.022 (0.016)		-0.018* (0.010)		-0.023** (0.011)	
(c) Efficacy	-0.013 (0.016)		-0.015 (0.010)		-0.014 (0.011)	
(d) Add-up	-0.033** (0.016)		-0.026*** (0.010)		-0.036*** (0.011)	
(e) Add-up + Superintendent	-0.043*** (0.016)		-0.030*** (0.010)		-0.032*** (0.011)	
(f) Add-up + Tips	-0.018 (0.016)		-0.023** (0.010)		-0.031*** (0.011)	
(g) Benefits	-0.001 (0.016)		-0.000 (0.010)		-0.003 (0.011)	
Add-up pooled		-0.032*** (0.012)		-0.027*** (0.007)		-0.033*** (0.008)
Observations	131,312	82,163	131,312	82,163	131,152	82,059
Mean for Control	1.239	1.243	3.681	3.689	1.927	1.929

Notes: Negative binomial estimates of absences in the month following a truancy notification mailing regressed on (1, 3, 5) an indicator for condition assignment or (2, 4, 6) an indicator for assignment to one of the three primary conditions (D-F). Reference group received the Standard Notice. Absences include full day absences only in the month following a truancy notification mailing (columns 1, 2); full and partial day absences in the month following a truancy notification mailing (columns 3, 4); and full and partial day absences in the 10 days following a truancy notification mailing (columns 5, 6). 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.

Supplementary Figures

Figure S1. Standard truancy notification letter (Control condition)

Condition A (Control)
Standard Notice

School Name
Address
City, State Zip

Date

Parent Name
Parent Address
RE: Student Name
City, State Zip

Student ID#: XXXXX

Dear Parent/Guardian:

Good attendance is required for academic excellence. [State name] Education Code determines what types of absences are excused or unexcused. When a child is absent from school and/or tardy in excess of 30 minutes on three (3) occasions in one school year without a valid excuse, the law considers that child to be truant. The law and district policy requires all schools to notify parents when this occurs. The [district name] central office automatically sends these letters based on school records so that parents are aware of absences and can address these concerns.

School records indicate that your child was absent from school without a valid excuse on occasions, beginning with the following dates:

Thursday, September 12, 2015
Thursday, September 19, 2015
Thursday, September 27, 2015

Our goal is to partner with families to ensure that students are attending school every day. Although the following consequences may appear harsh we are mandated by Education Code Article 48260.5 to inform you of the following:

- That the parent or guardian is obligated to compel the attendance of the pupil at school.
- That parents or guardians who fail to meet these obligation may be guilty of an infraction and subject to prosecution pursuant to Article 6 (commencing with Section 48290) of Chapter 2 or Part 27.
- That alternative education programs are available in the district.
- That the parent or guardian has the right to meet with appropriate school personnel to discuss solutions to the pupil's truancy.
- That the pupil may be subject to prosecution under Education Code Section 48264.
- That the pupil may be subject to suspension, restriction, or delay of the pupil's driving privilege pursuant to Section 13202.7 of the Vehicle Code.
- That it is recommended that the parent or guardian accompany the pupil to school and attend classes with the pupil for one day.

Please recognize that we are required to monitor attendance and notify parents of potential problems with student attendance. If you have concerns about your child's attendance, or if you believe there is an error in this notice, contact the school at «SCHOOL_PHONE_NUMBER». The designated attendance personnel will work with you to resolve this issue. We look forward to assisting you.

Sincerely,

Principal Signature

Principal Name

Figure S2. Simplified Notice (Condition B)

Condition B Simplified Notice [STUDENT NAME]'s absences from school are concerning. [STUDENT NAME] is now "truant" because [SHE/HE] missed school (or was more than 30 minutes late) without a valid excuse [XX] days, beginning with: <i>Thursday, September 12, 2015</i> <i>Thursday, September 19, 2015</i> <i>Thursday, September 27, 2015</i> Being absent can lead to doing poorly in school. Students who miss many days of school are more likely to: • Fail their classes • Drop out from high school • Have poor relationships with parents and teachers We are required by California law to send you this letter to warn you about the consequences of additional unexcused absences (see bottom bar). Please remember that every absence matters. Sincerely, [PRINCIPAL FULL NAME], [TITLE] If you have concerns about your child's attendance or if you believe our records are inaccurate contact the Truancy- [State name] Education Code School administrators determine what types of absences are excused or unexcused based on state law and on the facts of the pupil's circumstances. When a child is absent from school and/or tardy in excess of 30 minutes on three (3) occasions in one school year without a valid excuse, the law considers that child to be truant. Education Code Section 48260.5 requires us to inform you of the following: • <i>That the parent or guardian is obligated to compel the attendance of the pupil at school.</i> • <i>That parents or guardians who fail to meet these obligation may be guilty of an infraction and subject to prosecution pursuant to Article 6 (commencing with Section 48290) of Chapter 2 or Part 27.</i> • <i>That alternative education programs are available in the district.</i> • <i>That the parent or guardian has the right to meet with appropriate school personnel to discuss solutions to the pupil's truancy.</i> • <i>That the pupil may be subject to prosecution under Education Code Section 48264.</i> • <i>That the pupil may be subject to suspension, restriction, or delay of the pupil's driving privilege pursuant to Section 13202.7 of the Vehicle Code.</i> • <i>That it is recommended that the parent or guardian accompany the pupil to school and attend classes with the pupil for one day.</i> school at «SCHOOL_PHONE_NUMBER».
--

Figure S3. Efficacy Notice (Condition C)

Condition C
Efficacy Notice

We need your help. [STUDENT NAME]'s absences from school are concerning, **and your partnership is critical.**

[STUDENT NAME] is now "truant" because [SHE/HE] missed school (or was more than 30 minutes late) without a valid excuse on:

Thursday, September 12, 2015
Thursday, September 19, 2015
Thursday, September 27, 2015

Being absent can lead to doing poorly in school. Students who miss many days of school are more likely to:

- Fail their classes
- Drop out from high school
- Have poor relationships with parents and teachers

We are required by [STATE] law to send you this letter and to warn you of the consequences of additional unexcused absences (see sidebar).

Please remember that every absence matters. **You are key to improving [STUDENT NAME]'s attendance.**

Sincerely,
Principal X

Truancy- [STATE] Education Code School administrators determine what types of absences are excused or unexcused based on state law and on the facts of the pupil's circumstances. When a child is absent from school and/or tardy in excess of 30 minutes on three (3) occasions in one school year without a valid excuse, the law considers that child to be truant.

Education Code Section 48260.5 requires us to inform you of the following:

- That the parent or guardian is obligated to compel the attendance of the pupil at school.
- That parents or guardians who fail to meet these obligation may be guilty of an infraction and subject to prosecution pursuant to Article 6 (commencing with Section 48290) of Chapter 2 or Part 27.
- That alternative education programs are available in the district.
- That the parent or guardian has the right to meet with appropriate school personnel to discuss solutions to the pupil's truancy.
- That the pupil may be subject to prosecution under Education Code Section 48264.
- That the pupil may be subject to suspension, restriction, or delay of the pupil's driving privilege pursuant to Section 13202.7 of the Vehicle Code.
- That it is recommended that the parent or guardian accompany the pupil to school and attend classes with the pupil for one day.

If you have concerns about your child's attendance or if you believe our records are inaccurate contact the school at «SCHOOL_PHONE_NUMBER».

Figure S4. Add-up Notice (Condition D)

Condition D
Add-up Notice

We need your help. [STUDENT NAME]'s absences from school are concerning, **and your partnership is critical.** **Students who miss just one or two days of school each month can fall seriously behind.**

[STUDENT NAME] is now "truant" because [SHE/HE] missed school (or was more than 30 minutes late) without a valid excuse on:

Thursday, September 12, 2015
Thursday, September 19, 2015
Thursday, September 27, 2015

Being absent can lead to doing poorly in school. Students who miss many days of school are more likely to:

- Fail their classes
- Drop out from high school
- Have poor relationships with parents and teachers

We are required by [STATE] law to send you this letter and to warn you of the consequences of additional unexcused absences (see sidebar).

Please remember that every absence matters **and just a couple days each month adds up.** **You are key to improving** [STUDENT NAME]'s **attendance.**

Sincerely,
Principal X

Truancy- [STATE] Education Code School administrators determine what types of absences are excused or unexcused based on state law and on the facts of the pupil's circumstances. When a child is absent from school and/or tardy in excess of 30 minutes on three (3) occasions in one school year without a valid excuse, the law considers that child to be truant.

Education Code Section 48260.5 requires us to inform you of the following:

- That the parent or guardian is obligated to compel the attendance of the pupil at school.
- That parents or guardians who fail to meet these obligation may be guilty of an infraction and subject to prosecution pursuant to Article 6 (commencing with Section 48290) of Chapter 2 or Part 27.
- That alternative education programs are available in the district.
- That the parent or guardian has the right to meet with appropriate school personnel to discuss solutions to the pupil's truancy.
- That the pupil may be subject to prosecution under Education Code Section 48264.
- That the pupil may be subject to suspension, restriction, or delay of the pupil's driving privilege pursuant to Section 13202.7 of the Vehicle Code.
- That it is recommended that the parent or guardian accompany the pupil to school and attend classes with the pupil for one day.

If you have concerns about your child's attendance or if you believe our records are inaccurate contact the school at «SCHOOL_PHONE_NUMBER».

Figure S5. Add-up + Superintendent Notice (Condition E)

Condition E
Add-up + Superintendent Notice

We need your help. [STUDENT NAME]'s absences from school are concerning, **and your partnership is critical.** **Students who miss just one or two days of school each month can fall seriously behind.**

[STUDENT NAME] is now "truant" because [SHE/HE] missed school (or was more than 30 minutes late) without a valid excuse on:

Thursday, September 12, 2015
Thursday, September 19, 2015
Thursday, September 27, 2015

Being absent can lead to doing poorly in school. Students who miss many days of school are more likely to:

- Fail their classes
- Drop out from high school
- Have poor relationships with parents and teachers

We are required by [STATE] law to send you this letter and to warn you of the consequences of additional unexcused absences (see sidebar).

Please remember that every absence matters **and just a couple days each month adds up.** **You are key to improving [STUDENT NAME]'s attendance.**

Sincerely,
Superintendent X

Truancy- [STATE] Education Code School administrators determine what types of absences are excused or unexcused based on state law and on the facts of the pupil's circumstances. When a child is absent from school and/or tardy in excess of 30 minutes on three (3) occasions in one school year without a valid excuse, the law considers that child to be truant.

Education Code Section 48260.5 requires us to inform you of the following:

- *That the parent or guardian is obligated to compel the attendance of the pupil at school.*
- *That parents or guardians who fail to meet these obligation may be guilty of an infraction and subject to prosecution pursuant to Article 6 (commencing with Section 48290) of Chapter 2 or Part 27.*
- *That alternative education programs are available in the district.*
- *That the parent or guardian has the right to meet with appropriate school personnel to discuss solutions to the pupil's truancy.*
- *That the pupil may be subject to prosecution under Education Code Section 48264.*
- *That the pupil may be subject to suspension, restriction, or delay of the pupil's driving privilege pursuant to Section 13202.7 of the Vehicle Code.*
- *That it is recommended that the parent or guardian accompany the pupil to school and attend classes with the pupil for one day.*

If you have concerns about your child's attendance or if you believe our records are inaccurate contact the school at «SCHOOL_PHONE_NUMBER».

Figure S6. Add-up + Tips Notice (Condition F)

Attendance Tips (for Parents/Guardians) • Talk about the importance of attendance for success in school and life. • Create regular bed time and morning routines so your child is well-rested and ready to learn. • Develop back up plans for getting to school if something comes up. Consider making sure a family member, a neighbor or another parent can help. • Do not schedule non-emergency medical appointments when school is in session. • Do not schedule trips when school is in session. • Do not let your child miss school unless he or she is truly sick. Check for a fever using a thermometer. If no fever, send your child to school. Sometimes complaints of stomach aches or headaches are part of a normal adjustment to school and not reasons to stay home. • Track and monitor your child's absences. Request a copy of their attendance record from the school. • Speak to your child regularly about school. Find out what motivates him/her and what is challenging. Talk with your child's teacher or counselor for support.	Condition F Add-up + Tips Notice We need your help. [STUDENT NAME]'s absences from school are concerning, and your partnership is critical. Students who miss just one or two days of school each month can fall seriously behind. [STUDENT NAME] is now "truant" because [SHE/HE] missed school (or was more than 30 minutes late) without a valid excuse on: <i>Thursday, September 12, 2015</i> <i>Thursday, September 19, 2015</i> <i>Thursday, September 27, 2015</i> Being absent can lead to doing poorly in school. Students who miss many days of school are more likely to: • Fail their classes • Drop out from high school • Have poor relationships with parents and teachers We are required by [STATE] law to send you this letter and to warn you of the consequences of additional unexcused absences (see sidebar). Please remember that every absence matters and just a couple days each month adds up. You are key to improving [STUDENT NAME]'s attendance. Sincerely, Principal X Truancy- [STATE] Education Code School administrators determine what types of absences are excused or unexcused based on state law and on the facts of the pupil's circumstances. When a child is absent from school and/or tardy in excess of 30 minutes on three (3) occasions in one school year without a valid excuse, the law considers that child to be truant. Education Code Section 48260.5 requires us to inform you of the following: • That the parent or guardian is obligated to compel the attendance of the pupil at school. • That parents or guardians who fail to meet these obligation may be guilty of an infraction and subject to prosecution pursuant to Article 6 (commencing with Section 48290) of Chapter 2 or Part 27. • That alternative education programs are available in the district. • That the parent or guardian has the right to meet with appropriate school personnel to discuss solutions to the pupil's truancy. • That the pupil may be subject to prosecution under Education Code Section 48264. • That the pupil may be subject to suspension, restriction, or delay of the pupil's driving privilege pursuant to Section 13202.7 of the Vehicle Code. • That it is recommended that the parent or guardian accompany the pupil to school and attend classes with the pupil for one day. If you have concerns about your child's attendance or if you believe our records are inaccurate contact the school at «SCHOOL_PHONE_NUMBER».
--	---

Figure S7. Benefits Notice (Condition G)

Condition G
Benefits Notice

We need your help. [STUDENT NAME]'s absences from school are concerning, **and your partnership is critical.** **Students who miss just one or two days of school each month can fall seriously behind.**

[STUDENT NAME] is now "truant" because [SHE/HE] missed school (or was more than 30 minutes late) without a valid excuse on:

Thursday, September 12, 2015
Thursday, September 19, 2015
Thursday, September 27, 2015

Good attendance can lead to succeeding in school. Students who attend school every day are more likely to:

- Pass their classes
- Graduate from high school
- Have good relationships with parents and teachers

We are required by [STATE] law to send you this letter and to warn you of the consequences of additional unexcused absences (see sidebar).

Please remember that every absence matters **and just a couple days each month adds up.** **You are key to improving [STUDENT NAME]'s attendance.**

Sincerely,
Principal X

If you have concerns about your child's attendance or if you believe our records are inaccurate contact the

Truancy- [STATE] Education Code School administrators determine what types of absences are excused or unexcused based on state law and on the facts of the pupil's circumstances. When a child is absent from school and/or tardy in excess of 30 minutes on three (3) occasions in one school year without a valid excuse, the law considers that child to be truant.

Education Code Section 48260.5 requires us to inform you of the following:

- That the parent or guardian is obligated to compel the attendance of the pupil at school.
- That parents or guardians who fail to meet these obligations may be guilty of an infraction and subject to prosecution pursuant to Article 6 (commencing with Section 48290) of Chapter 2 or Part 27.
- That alternative education programs are available in the district.
- That the parent or guardian has the right to meet with appropriate school personnel to discuss solutions to the pupil's truancy.
- That the pupil may be subject to prosecution under Education Code Section 48264.
- That the pupil may be subject to suspension, restriction, or delay of the pupil's driving privilege pursuant to Section 13202.7 of the Vehicle Code.
- That it is recommended that the parent or guardian accompany the pupil to school and attend classes with the pupil for one day.

school at «SCHOOL_PHONE_NUMBER».

References

- Bergman, P., Lasky-Fink, J., & Rogers, T. (2019). Simplification and defaults affect adoption and impact of technology, but decision makers do not realize it. *Organizational Behavior and Human Decision Processes*. Retrieved from <https://www.sciencedirect.com/science/article/pii/S0749597818306289>
- Bettinger, E. P., Terry Long, B., Oreopoulos, P., & Sanbonmatsu, L. (2012). The role of application assistance and information in college decisions: Results from the H&R Block Fafsa experiment. *The Quarterly Journal of Economics*, 127(3), 1205-1242.
- Lambert, D. (2017, October 29). Should parents be able to take their kids out of school without getting a truancy letter? *The Sacramento Bee*. Retrieved from <https://www.sacbee.com/news/local/education/article181277431.html>
- Robinson, C. D., Lee, M. G., Dearing, E., & Rogers, T. (2018). Reducing student absenteeism in the early grades by targeting parental beliefs. *American Educational Research Journal*, 55(6), 1163-1192.
- Rogers, T., & Feller, A. (2018). Reducing student absences at scale by targeting parents' misbeliefs. *Nature Human Behaviour*, 2, 335-342.