



HARVARD Kennedy School
JOHN F. KENNEDY SCHOOL OF GOVERNMENT

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

Faculty Research Working Paper Series

Jessica Lasky-Fink

University of California, Berkeley

Carly Robinson

Harvard University

Hedy Chang

Attendance Works

Todd Rogers

Harvard Kennedy School

August 2019

Updated March 2021

RWP19-026

Visit the **HKS Faculty Research Working Paper Series** at:

https://www.hks.harvard.edu/research-insights/publications?f%5B0%5D=publication_types%3A121

The views expressed in the **HKS Faculty Research Working Paper Series** are those of the author(s) and do not necessarily reflect those of the John F. Kennedy School of Government or of Harvard University. Faculty Research Working Papers have not undergone formal review and approval. Such papers are included in this series to elicit feedback and to encourage debate on important public policy challenges. Copyright belongs to the author(s). Papers may be downloaded for personal use only.

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

Jessica Lasky-Fink*
University of California, Berkeley

Carly D. Robinson
Annenberg Institute, Brown University

Hedy Chang
Attendance Works

Todd Rogers
Harvard Kennedy School

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.

*Corresponding author: jlaskyfink@berkeley.edu

Introduction

Attendance strongly predicts academic success. Students who miss more days of school perform worse academically (Gottfried, 2010; Gershenson et al., 2017; Gottfried, 2011; Allensworth & Easton, 2007), score lower on reading and math proficiency tests (Balfanz & Byrnes, 2013; Liu et al., 2019), 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 guardians¹ 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 on 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. Existing empirical evidence shows that interventions such as personalized mailers (Rogers & Feller, 2018; Robinson et al., 2018), reminders delivered via text message (Kalil et al., 2019), and mentors (Guryan et al., 2017) can positively affect student attendance. But these proven interventions all involve implementing programs beyond a district's normal practice. The present research demonstrates that meaningful gains in student attendance can also be achieved through simple and virtually costless modifications to existing institutional processes. More broadly, 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 16² 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 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

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

² 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.

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 et al., 2020; 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 6th to 8th 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 et al., 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, affect 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 et al., 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 hold upwardly-biased beliefs about their child's performance (Bergman, 2015; Bergman & Chan, 2021). 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 et al., 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 et al., 2018; Damgaard & Nielsen, 2018; Bergman et al., 2020; Bettinger et al., 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 10th 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 5th 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.

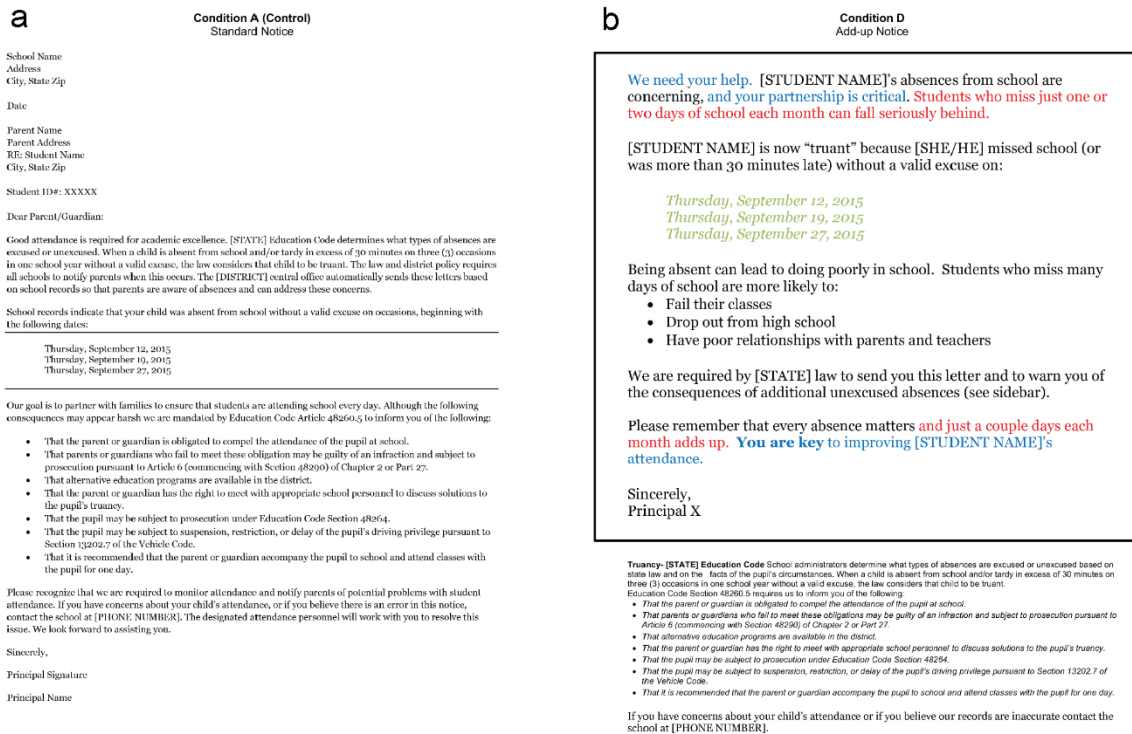


Fig. 1. (a) Standard truancy notice; and **(b)** the most effective modified notice (Condition D), which was modified and simplified using behavioral insights. The Add-up Notice reduced student absences compared to the Standard Notice by 0.07 days in the one month following each truancy notice mailing. All letters were mailed in black and white; colors are only used to illustrate modifications. See supplementary online material (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 et al., 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 th 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 th 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 added language reinforcing parental efficacy.	
(D) Add-up	16,512	Parents received the Efficacy Notice (condition C) with added language emphasizing that just 1-2 absences per month add 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, limited English proficiency (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).

Over the course of the study, 30% of students in the district met the threshold for truancy and were thus included in our randomized universe. We excluded students who were initially randomized, but could not be found in the end-of-year data provided by the district and are assumed to have left the district. 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), which represents about 25% of the district's total student population. 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 $p = .005$). 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 1.9% 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; DellaVigna & Linos, 2020).

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 et al., 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.³ 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 to 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.

³ 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	-0.008 (0.019)	-0.003 (0.006)
(d) Add-up	-0.060*** (0.021)	-0.022*** (0.006)
(e) Add-up + Superintendent	-0.045** (0.020)	-0.018*** (0.006)
(f) Add-up + Tips	-0.052*** (0.019)	-0.016** (0.006)
(g) Benefits	0.004 (0.019)	0.000 (0.006)
Observations	131,312	131,312
R-squared	0.276	0.210
Mean for Control	1.853	0.780

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, 2021; Bergman et al., 2020). 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 $p = .09$). Although the interaction between high school and assignment to treatment is not statistically 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 et al., 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 et al., 2018), reminders delivered via text message (Kalil et al., 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 et al., 2020; Bergman & Chan, 2021; 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.

Acknowledgments

We thank grants by Chan Zuckerberg Initiative and the Laura and John Arnold Foundation to T. Rogers for supporting this research. We thank our school district colleagues for partnership and collaboration. We thank Kim Bohling, Gonzalo Pons, and John Ternovski for research and analysis support. We thank Jill Habig and Ben Chida in the office of California Attorney General Kamala Harris for guidance on truancy notification regulations. No funders had any role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

References

- Allensworth, E. M., & Easton, J. Q. (2007). *What matters for staying on-track and graduating in Chicago public high schools: A close look at course grades, failures, and attendance in the freshman year*. Chicago, IL: Consortium on Chicago School Research.
- Balfanz, R., & Byrnes, V. (2013). *Meeting the challenge of combating chronic absenteeism: Impact of the NYC Mayor's Interagency Task Force on Chronic Absenteeism and School Attendance and its implications for other cities*. Baltimore, MD: Johns Hopkins University School of Education.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2): 191.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. W.H. Freeman and Company.
- Baumeister, R. F., Bratslavsky, E., Finkenauer, C., & Vohs, K. D. (2001). Bad is stronger than good. *Review of General Psychology*, 5(4), 323-370.
- Bergman, P. (2015). Parent-child information frictions and human capital investment: Evidence from a field experiment. CESifo Working Paper Series No. 5391. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2622034
- Bergman, P., & Chan, E. W. (2021, Winter). Leveraging technology to engage parents at scale: Evidence from a randomized controlled trial. *Journal of Human Resources*, 56(1), 125-158.
- Bergman, P., Lasky-Fink, J., & Rogers, T. (2020). Simplification and defaults affect adoption and impact of technology, but decision makers do not realize it. *Organizational Behavior and Human Decision Processes*, 158, 66-79. doi:10.1016/j.obhdp.2019.04.001
- 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.
- Bohler, S. K., Eichenlaub, K. L., Litteken, S. D., & Wallis, D. A. (1996). Identifying and supporting low-literate parents. *The Reading Teacher*, 50(1), 77-79.
- Cheung, A. C. K., & Slavin, R. E. (2016). How methodological features affect effect sizes in education. *Educational Researcher*, 45(5), 283-292. doi: 10.3102/0013189X16656615
- Cortes, K. E., Fricke, H., Loeb, S., Song, D. S., & York, B. (2019). When behavioral barriers are too high or low – How timing matters for parenting interventions. *NBER Working Paper No. w25964*. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3405151

- Damgaard, M. T., & Nielsen, H. S., (2018). Nudging in education. *Economics of Education Review*, 64, 313-342.
- DellaVigna, S. (2009). Psychology and economics: Evidence from the field. *Journal of Economic Literature*, 47(2), 315-372.
- DellaVigna, S., & Linos, E. (2020). RCTs to scale: Comprehensive evidence from two nudge units. NBER Working Papers #27594. <https://www.nber.org/papers/w27594>
- Gershenson, S., Jackowitz, A., & Brannegan, A. (2017). Are student absences worth the worry in US primary schools? *Education Finance and Policy*, 12(2), 137-165.
- Gottfried, M. A. (2010). Evaluating the relationship between student attendance and achievement in urban elementary and middle schools: An instrumental variables approach. *American Educational Research Journal*, 47(2), 434-465.
- Gottfried, M. A. (2011). The detrimental effects of missing school: Evidence from urban siblings. *American Journal of Education*, 117(2), 147-182.
- Guryan, J., Christenson, S., Claessens, A., Engel, M., Lai, I., Ludwig, J., Turner, A. C., & Turner, M. C. (2017). The effect of mentoring on school attendance and academic outcomes: A randomized evaluation of the Check & Connect program. Northwestern University Institute for Policy Research Working Paper Series, Working Paper-16-18. Retrieved from <https://www.ipr.northwestern.edu/our-work/working-papers/2016/WP-16-18.html>
- Henderson, A. T. & Mapp, K. L. (2002). A new wave of evidence: The impact of school, family, and community connections on student achievement. National Center for Family and Community Connections with Schools. Retrieved from <https://www.sedl.org/connections/resources/evidence.pdf>
- Hoover-Dempsey, K. V., Bassler, O. C., & Brissie, J. S. (1992). Explorations in parent-school relations. *The Journal of Educational Research*, 85(5), 287-294.
- Hoover-Dempsey, K. V., Walker, J. M., Sandler, H. M., Whetsel, D., Green, C. L., Wilkins, A. S., & Closson, K. (2005). Why do parents become involved? Research findings and implications. *The Elementary School Journal*, 106(2), 105-130.
- Jordan, P W., & Miller, R. (2017). Who's in: Chronic absenteeism under the Every Student Succeeds Act. FutureEd, Georgetown University, Washington, DC.
- Kalil, A., Mayer, S. E., & Gallegos, S. (2019). Using behavioral insights to increase attendance at subsidized preschool programs: The Show Up to Grow Up intervention. *Organizational Behavior and Human Decision Processes*. In press. doi: 10.1016/j.obhdp.2019.11.002

- Kraft, M. (2020). Interpreting effect sizes of education interventions. *Educational Researcher*, 49(4), 241-253. doi: 10.3102/0013189X20912798
- Kraft, M. A., & Rogers, T. (2015). The underutilized potential of teacher-to-parent communication: Evidence from a field experiment. *Economics of Education Review*, 47, 49–63.
- 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>
- Learning Heroes. (2018). Parents 2018: Going beyond good grades. Retrieved from <https://bealearninghero.org/research/>
- Liu, J., Lee, M., & Gershenson, S. (2019, September). The short- and long-run impacts of secondary school absences. Institute of Labor Economics, IZA DP No. 12613. <https://www.iza.org/publications/dp/12613/the-short-and-long-run-impacts-of-secondary-school-absences>
- Martin, E., & Roberts, K. H. (1966). Grammatical factors in sentence retention. *Journal of Verbal Learning and Verbal Behavior*, 5, 211-218.
- National Center for Education Statistics (NCES). (2003). *National assessment of adult literacy (NAAL)*. Retrieved from https://nces.ed.gov/naal/kf_demographics.asp
- National Center for Education Statistics (NCES). (2017). State education reforms (SER). Retrieved from https://nces.ed.gov/programs/statereform/tab5_1.asp
- Pope, D. (2007). Reacting to rankings: Evidence from “America’s Best Hospitals.” *Journal of Health Economics*, 28, 1154-1165.
- Robinson, C., Lee, M., Dearing, E., & Rogers, T. (2018). Reducing student absenteeism in the early grades by targeting parental beliefs. *American Educational Research Journal*, 26(3), 353-383.
- Rogers, T., & Feller, A. (2018). Reducing absences at scale by targeting parents’ misbeliefs. *Nature Human Behaviour*, 2, 335-342.
- Schoeneberger, J. (2012). Longitudinal attendance patterns: Developing high school dropouts. *The Clearinghouse: A Journal of Educational Strategies, Issues and Ideas*, 85(1), 7-14.
- Sparks, S. D. (2018, April 25). How many students are chronically absent in your state? Federal data show rates rising. *Education week*. Retrieved from http://blogs.edweek.org/edweek/inside-school-research/2018/04/chronic_absenteeism_states_civil_rights_data_2015_2016.html

Taylor, S. E., & Fiske, S. T. (1978). Salience, attention, and attribution: Top of the head phenomena. *Advances in Experimental Social Psychology*, 11, 249-288.