Reducing Parent-School Information Gaps and Improving Education Outcomes: Evidence from High-Frequency Text Messages

Researchers:

Samuel Berlinski

Mattias Busso

Taryn Dinkelman

Claudia Martinez

Sector(s): Education

Location: Santiago, Chile

Sample: Approximately 1,000 children in seven low-income schools

Initiative(s): Post-Primary Education Initiative (PPE)

Target group: Children Parents Secondary schools Students

Outcome of interest: Enrollment and attendance Student learning

Intervention type: Digital and mobile Information Monitoring Training

AEA RCT registration number: AEARCTR-0000458

Partner organization(s): Municipality of Peñalolén, Inter-American Development Bank (IDB), Spencer Foundation

Recent literature has increasingly examined whether sending parents information on their children's school performance can improve grades, attendance, and behavior, as well as mitigate dropout. Researchers conducted a randomized evaluation to test the impact of regular informational text messages to parents on children's academic performance. The intervention improved math grades and attendance, although it did not impact negative classroom behavior on average. These effects were generally largest for those at highest risk of dropout.

Policy issue

Researchers have found absenteeism, failing grades, and misbehavior in the classroom as strong predictors of early dropout in school, which is a serious challenge in many countries. While schools around the world routinely track these student outcomes, families often do not have timely access to the information. Recent literature has increasingly examined whether sending parents information on their children's school behavior and performance can improve these outcomes and mitigate dropout. However, many of these interventions were implemented on only one occasion, or have required changes in inputs, practices or pedagogy, potentially limiting their scalability. Can regular informational text messages to parents, leveraging existing school practices, improve attendance and learning for students?

Context of the evaluation

In Chile, only 79 percent of students in the lowest-income quintile finish high school, while over 96 percent of students in the highest-income quintile do so. One of the largest determinants of high school completion is grade repetition, which is itself

shaped by performance, attendance, and behavior. In order to move to the next grade, students must attend at least 85 percent of school days and obtain satisfactory grades in all subjects. The transition from the final grade of primary school to the beginning of secondary school is when many students are at high risk of being held back or, in the worst-case scenario, of dropping out of school. For this reason, this study focuses on students in the last five grades of primary school, when attendance and grades become more important, but before the risks of grade repetition or dropout significantly increase.

Although Chile is now a high-income country, schools still lag behind relative to those in the United States or in the average OECD country. For example, average class size in Chile's secondary schools is 35 students, while in the United States the figure is 26. According to the 2018 PISA results, almost one-third of Chilean students are below the minimum proficiency level in reading, compared with 19 percent in the United States, and 52 percent of Chilean students are below minimum proficiency in math, compared with 27 percent in the United States. As in many other urban school settings, students in Chile are highly segregated into schools by socioeconomic status.

Parents often lack important information on students' performance. In Chile, parents are generally only provided with quarterly report cards containing students' grades and number of absences, as well as potential additional communication from teachers and principals if their child had especially poor attendance, grades, or behavior. Prior to the intervention, 26 percent of parents did not correctly report their children's grades, while 48 percent did not know their child's attendance in school over the previous two weeks. This level of misinformation was highest among students who were at highest risk of dropping out, as measured by performance, attendance, and behavior reports.

In this study, participants were about 10 years old on average, and 45 percent of students were female. Students' average daily school attendance rate was 89 percent, and 95 percent had successfully passed their grade in the previous year.

A parent receiving text messages about their child's education in Chile.

Photo credit: Shutterstock.com

Details of the intervention

Researchers conducted a randomized evaluation to test the impact of regular informational text messages to parents on children's academic performance and grade retention in Chile. Researchers worked in publicly-funded schools from across two municipalities in Santiago to recruit seven schools for the study. In these schools, researchers held meetings to invite all parents of students in grade 4 or above to join the study. Over 50 percent of parents agreed to participate, resulting in a sample of about 1000 children.

Researchers randomized 63 classrooms to receive either a high or a low share of students whose parents received text messages on student performance. In high-share classrooms, 75 percent of students whose parents agreed to participate were in the intervention group; in low-share classrooms, only 25 percent of students whose parents had consented were in the intervention group. Therefore, all classrooms in the study contained at least some students whose parents received text messages on performance.

For the main text message intervention, called Papas al Dia, researchers sent weekly text messages to the intervention group with information on children's attendance, and monthly text messages on classroom behavior and math scores (both children's individual scores and their scores relative to the class average). Parents in the intervention group also received messages with information on school meetings, holidays, and other miscellaneous school information. Parents in the comparison group received only these general messages on meetings and holidays, but continued learning about their child's academic performance through the standard quarterly report cards. Parents in both intervention and comparison groups received these texts from May 2014 to December 2015 (with a summer break in January and February 2014), which researchers sent on Mondays. Parents' phones successfully received approximately 60 percent of text messages.

Researchers used information from four data sources. First, they used school classroom books to collect data on attendance, grades, and behavior. Second, they collected student-level records from the Chilean Ministry of Education on end-of-year student performance, attendance, grade retention, and demographic information. Third, they collected information on whether parents received the program text messages. Lastly, they conducted surveys asking students and their parents about attendance, grades, parental support, and more. Researchers used this range of data to create an at-risk index measuring each student's risk of failing classes or dropping out, which was composed of information on their attendance, math grades, and number of behavioral notes.

To assess parents' information gaps, researchers compared their survey answers on their children's classroom performance to official records. They also compared student and parent responses to survey questions on study habits, parental support and supervision, and more. During a follow-up survey, researchers also asked parents about their willingness to pay CLP 500 (US$0.75), CLP 1000 (US$1.50), or CLP 1500 (US$2.25) per month for the text messages on their child's performance to continue into the next school year to assess how much parents valued the program.

Results and policy lessons

Weekly text messages sent to parents on their children's academic attendance and performance improved student math grades and attendance, but the program did not affect how often students received a negative classroom behavior note on average. These effects on grades and attendance were generally largest for those at highest risk of dropout, who also received fewer negative behavioral notes after the program.

Grades and test scores: Average math grades in the intervention group improved by 0.09 standard deviations relative to the comparison group, decreasing the probability that students failed math by 2.7 percentage points. This effect was largest for students at higher risk of dropout, while there was no impact on students who were not at risk of dropping out. Language scores also increased by 0.11 standard deviations, despite the fact that text messages sent to parents did not include information on language performance. This effect suggests that the text messaging may have spurred greater parental attention to children's

academic performance broadly, even in non-targeted subjects.

Attendance: Students in the intervention group increased their attendance by 1.1 percentage points (1 percent) on average relative to the comparison group, leading to a 4.7 percentage point (6 percent) increase in the number of students reaching the attendance rate needed to advance to the next grade. These effects were concentrated among the most at-risk students, while students at low risk of dropping out did not experience a change in their attendance. This increase in attendance was largest on Mondays, Tuesdays, and Wednesdays, perhaps because parents were more likely to act upon messages soon after they were sent on Mondays.

Classroom-level effects: Treated students in classrooms with a greater presence of students in the intervention group had higher math grades and attendance, and lower misbehavior. Students in classrooms with a high share of intervention students were also more likely to reach passing grade in math and attendance cutoffs, reducing their likelihood of repeating grades. These results suggest that no negative effects are expected from scaling the intervention. If anything, these results suggest positive peer effects and possibly larger impacts if entire classrooms receive the performance-based text messages.

Parental use of information: Although the effects of the messages on attendance were largest early in the week, after they were sent on Mondays, parents did not stop paying attention to messages over time. The effect of the messages on grades, behavior, and attendance did not diminish over the year and a half of the intervention.

Information via text messaging reduced parental misinformation on attendance, grades, and behavior. Parents do not report a clear effect on the level of academic support they provide to their children, but treated students perceived more family support and perceived greater parental involvement with school. Parents did value the messages, though: 71 percent of parents said they were willing to pay at least CLP 500 (US$0.75) for the messages to continue into the next school year, with willingness to pay going down as cost went up. Willingness to pay is similar between parents in the intervention group and the comparison group.

Cost-effectiveness: This program was relatively cost-effective at improving learning outcomes compared to other interventions in the literature. Though the program produced smaller learning improvements than comparable interventions, it was also very low-cost (US$10.86 per student per year, mostly in messaging fees). As a result, this intervention produced a 0.01 standard deviation increase in math scores per US$1.21 in annual spending per student, higher than most learning interventions.

Taken together, researchers found that a low-cost intervention to send text messages to parents about their children's academic performance improved student learning and attendance, particularly among students at the greatest risk of dropout. This research also provides evidence that similar programs may be more effective when more students in a classroom have parents who receive messages, and that information treatment may be more effective when delivered at high frequency and in an ongoing way over time.