

The Demotivating Effect (and Unintended Message) of Retrospective Awards

Background/Context:

Educators constantly devise new ways to motivate students to perform positive behaviors. Enter most schools and you will find students receiving symbolic awards (e.g., gold stars) for academic and behavioral tasks (Deci, Koestner, & Ryan, 2001). In fact, the state of California introduced a bill that encourages school administrators to “recognize pupils who achieve excellent attendance or demonstrate significant improvement in attendance (Assembly Bill No.2815, 2016). But, despite the common practice of offering awards to motivate students and an uptick in calls to reduce student absenteeism (ESSA, 2015), little research has been conducted that involves symbolic awards and improved school attendance.

Research Question:

Research shows conflicting results of offering awards for attendance (Gubler, Larkin, & Pierce, 2013; Markham, Scott, & McKee, 2002; Springer, Rosenquist, & Swain, 2015). We conducted a randomized field experiment to examine the impact of symbolic awards on school attendance. We study two types of awards: pre-announced awards (*prospective awards*) and surprise awards (*retrospective awards*), both of which were designed to motivate middle and high school student attendance. We pre-registered an analysis plan (Rogers, 2016) hypothesizing that students in either award condition would have improved attendance in the target month as compared to students in the control group.

Study 1: The Field Experiment

Setting & Intervention

The field experiment targeted 15,329 students in grades 6-12 across 14 U.S. school districts on the West Coast. To be able to randomly assign who would receive a prospective or

retrospective award, the sample was restricted to participants who had achieved perfect attendance in at least one fall month (e.g., zero absences in September, October, or November) of that year, which included 88% of the otherwise eligible population.

We tested the impact of sending students symbolic awards for attendance by randomly assigning eligible students to one of three conditions:

- (1) *Control*, where students received no additional communications;
- (2) *Prospective Award*, where students received a letter telling them that they would have the opportunity to earn an award if they had perfect attendance in February (i.e., the upcoming month); and
- (3) *Retrospective Award*, where students received a letter and a certificate for perfect attendance in a fall month.

In both award conditions it was noted that the award would not be offered again that year.

Results:

Contrary to our pre-registered hypothesis, we found the awards had no positive effect on attendance. Table 1 shows the results broken out by each condition. Students assigned to the *Prospective Award* condition did not differ from students in the control condition in the number of days of school they were absent in February.

Table 1. Average Treatment Effect (ATE) on Student Absences (“Prospective” vs. Control and “Retrospective” vs. Control)

	Absences			Perfect Attendance		
	1	2	3	4	5	6
Prospective	0.012 (0.026)	0.013 (0.025)	0.006 (0.024)	-0.012 (0.041)	-0.014 (0.043)	-0.006 (0.044)
Retrospective	0.065** (0.027)	0.065* (0.026)	0.060* (0.025)	-0.083* (0.041)	-0.090* (0.042)	-0.086* (0.043)
<i>N</i>	15,329	15,329	15,329	15,329	15,292	15,292
Control Mean	0.721	0.720	0.724	0.522	0.518	0.513
Strata	No	Yes	Yes	No	Yes	Yes
Covariates	No	No	Yes	No	No	Yes

+ $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Standard errors in parentheses.

Stratification variables were school and grade, controlled for as strata fixed effects.

Covariates include indicators for English Language Learner (ELL), missing ELL status and language of the letters, as well as the number of absences in the pre-study months of September, October, and November.

Columns 1-3 coefficients are point estimates from OLS regression models. The associated p-values are from FRT. Robust standard errors.

Columns 4-6 coefficients (the estimated log-odds) and associated p-values are from logit regression models.

Columns 5 & 6 have fewer participants because a handful of small randomization strata perfectly predicted the outcome variable and were therefore dropped in the regression.

We found that offering students awards retrospectively for the prior positive behavior actually had negative directional effects. Compared to the control group, students assigned to the *Retrospective Award* condition were absent 0.06 more days, which corresponds to a regression-adjusted 8.3% increase in absences in the month of February. These students were also about two percentage points less likely to have perfect attendance in February (60.75% vs. 62.55%).

Study 2: Exploring the Unintended Signals of Retrospective Awards

Setting

To understand why retrospective awards may have negative effects on behavior, we conducted a second, online experiment. We recruited 155 adult participants on Amazon Mechanical Turk. All participants read a vignette about a 10th grader living in a suburban town in California. Participants assigned to the treatment condition read a letter that a student received about a retrospective award for their attendance (using the materials from Study 1). The control

participants did not learn about the award. Everyone answered questions about the student's absences compared to his/her classmates, and the school's expectations for that student.

Results

Participants assigned to the treatment condition who learned about the retrospective award were significantly more likely to assume that they had fewer absences than their classmates (82%), as compared to participants assigned to the control group who did not learn about the award (27% assumed they had fewer absences than classmates), $\chi^2(1) = 47.1, p < .001$.

Participants in the treatment group also perceived that the school had lower expectations for their attendance ($M = 5.40, SE = 0.16$) than those in the control group ($M = 5.90, SE = 0.11$), $t(153) = 2.56, p = .011, Cohen's d = .41$.

Study 3: Surveying Educational Leaders

Setting:

Study 3 explores two questions. First, it examines whether education leaders shared our (incorrect) intuition that retrospective attendance awards would increase attendance. And second, it examines how widespread the practice of offering symbolic awards is in schools.

We recruited 188 K-12 educational leaders and 119 teachers to complete a survey. In the survey, we described the retrospective award and asked if they thought it would result in award winning students attending school more, the same, or less than if they did not receive the award. Next, we assessed the ubiquity of offering awards for student attendance.

Results

Only 2% of educators predicted that providing students with a retrospective award would result in students attending less school. Additionally, the majority (95% of school leaders and 57% of teachers) reported that someone in their school offered awards for student attendance.

Discussion

In contrast to our prediction that both prospective and retrospective awards would improve recipients' subsequent behavior, we find that prospective awards did not impact behavior and retrospective awards unexpectedly demotivated the target behavior. While the increase in students' absences was thankfully small, missing 8% more days of school in a month is cause for concern.

Our survey experiment exploring the possible mechanisms behind this negative effect suggest that the retrospective awards may have sent unintended signals to recipients: that recipients are performing better than the descriptive social norm of their peers, and that they are exceeding the institutional expectations for the awarded behavior. We found that most leaders and practitioners reported using awards to motivate attendance, and almost none had an intuition that retrospective awards could demotivate the target behavior. These findings have implications for when and how awards should be used to motivate desirable behaviors – and when they may backfire.

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