TalkingPoints

Effective Family-School Partnerships Lead to Improved Student Attendance

How the TalkingPoints Universal Family Engagement Platform Decreased Absence in Tulsa Public Schools

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At TalkingPoints, our mission as an education technology nonprofit is to improve student outcomes by unlocking the superpower of effective family-school partnerships.

We achieve this through an innovative technology platform that facilitates purpose-driven collaboration between schools, teachers, and families. The TalkingPoints Universal Family Engagement platform is rooted in decades of research and is continuously updated with evidence-based best practices. Our dedicated research team works with school districts, universities, and leading experts like Dr. Karen Mapp* from Harvard University to ensure our platform stays at the forefront of advancements and provides new insights for the field.

In partnership with Tulsa Public Schools, TalkingPoints conducted a quasi-experimental study to analyze the district's student administrative data to see how using the TalkingPoints platform impacted absenteeism rates.

* Learn more about Dr. Karen Mapp here.

✦ KEY FINDINGS

Researchers found that using TalkingPoints resulted in statistically significant improvements in attendance rates, resulting in increased learning hours for students:

6
additional days per student per school year

On average, attendance increases equate to an additional two days in school per student during the period studied.* Extrapolating these results through the entire school year would mean an average gain of six additional days in school per student.

24%
decrease in absenteeism rates per year

TalkingPoints led to an average 24% decrease in absenteeism rates across all grades with sufficient sample sizes (K-5, 7).

The TalkingPoints platform allowed teachers, administrators, and other school and district staff to build trusting relationships with all district families via two-way text messages in families' home languages. It offered tools to help foster productive conversations, supported by human translation and custom machine learning translation algorithms trained for the K12 context. The daily connections that the platform facilitated fostered trusting relationships and effective collaboration between the district's families and its schools.

* The period studied was March-June, 2021.

THE PROBLEM

Student attendance has long been a critical focus for schools and districts, and for good reason. When students miss school, they fall behind academically and contribute to widening achievement gaps. Further, missing 10% or more of school days annually classifies students as "chronically absent" and increases their risk of poverty, poor health, and involvement in the criminal justice system. Widespread absenteeism also disrupts classrooms, negatively impacting all students by making it harder for teachers to engage each student and address their learning needs (Attendance Works, n.d.). Attendance can also impact school budgets and resources, as funding is often tied to enrollment figures. The pandemic exacerbated attendance challenges, particularly for historically underserved students.

> Students missing school has always been a challenge, but since the pandemic it has become a national crisis. High rates of absenteeism are undermining student learning and increasing the chasm between schools and families. (Mapp & Rogers, 2024).

> Educators say the implications of absenteeism are far-reaching, forcing teachers to help students make up work they missed while keeping other students on track. And once students disconnect from school, it can be hard to get them back. (Meckler & Nathanson 2024).

SCOPE AND METHODOLOGY

Study Overview

This research involved over 30,000 students from 71 schools within the district. We used observational data and quasi-experimental methods to evaluate the impact of TalkingPoints on student attendance rates. The study compared the outcomes of TalkingPoints users and non-users during the Spring term (March-June, 2021).

Methodology

To ensure fair comparisons between TalkingPoints users and non-users, we applied statistical techniques to weight the samples by demographics. We then verified that the groups were similar from the beginning. Despite this, in some grades, the user and non-user groups remained too dissimilar for fair comparison, even after weighting, and these grades are excluded in the findings presented below.

Testing Alignment

The district uses the MAP Growth test to track student outcomes, administered three times a year:

- Fall: August 15th - November 30th
- Winter: December 1st - February 28th (29th on leap years)
- Spring: March 1st - June 15th

For our analysis, we aligned the attendance data with these testing periods, which also supports our long-term goal of correlating attendance data with academic outcomes. TalkingPoints adoption in the district started in the Fall and achieved critical mass mid-year. Consequently, to assess the impact of TalkingPoints adoption from the point it reached critical mass through the end of the school year, we concentrated our analysis on the Spring term.

Research Questions

Researchers evaluated data from the Spring term of the 2020-21 school year to address the following questions:

How did school-wide adoption of TalkingPoints affect student attendance outcomes?

Did the impact vary between students from Spanish-speaking and English-speaking households?

District Profile

At a glance: Tulsa Public Schools

A TalkingPoints partner since the 2020-21 school year, Tulsa Public Schools is a large, diverse, urban school district in Oklahoma. District website data shows Tulsa Public Schools supports:

70+ schools

30k+ students

84% are economically disadvantaged

79% identify as students of color

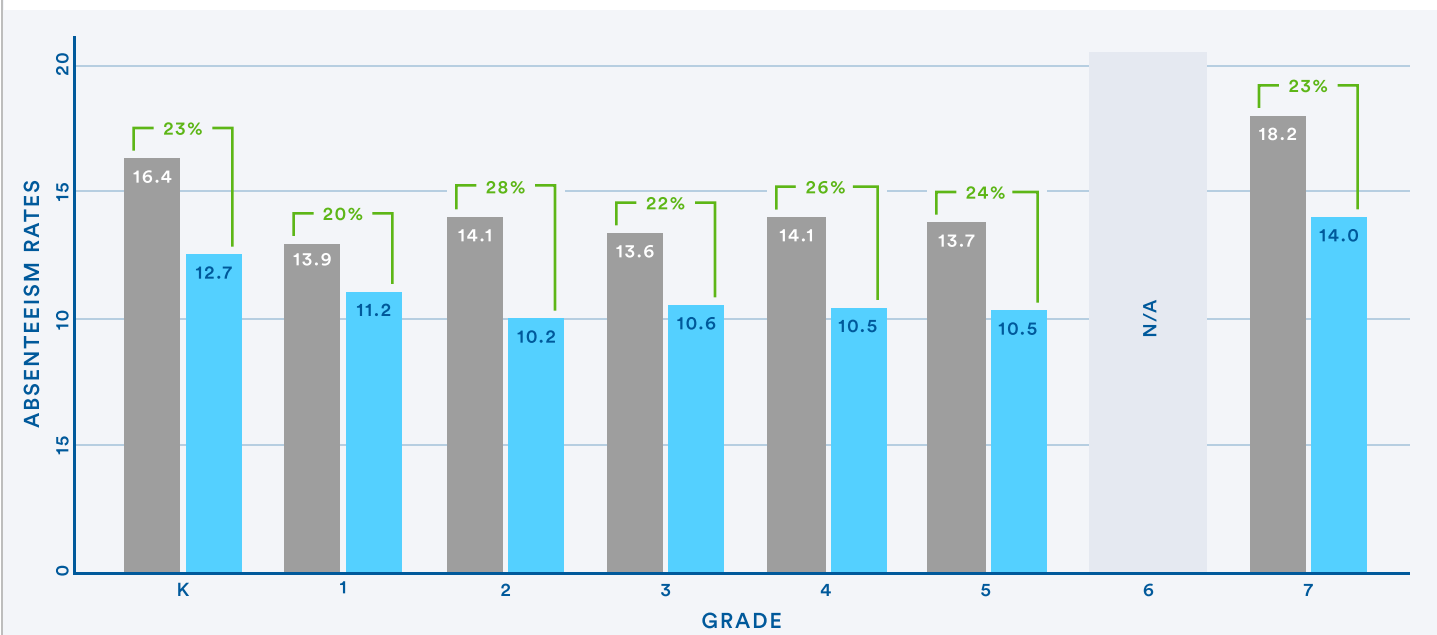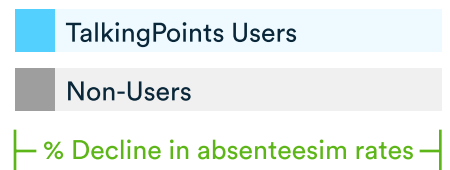**36%** are multilingual learners

DETAILED FINDINGS

How did school-wide adoption of TalkingPoints impact student attendance outcomes?

Following a term of implementation during the Spring of the 2020-21 school year, using daily attendance records, demographics, and school and teacher information collected for the 31,574 students in 71 schools, the findings revealed that the use of TalkingPoints resulted in significant positive impacts on attendance rates across all grades with sufficient sample sizes (K-5, 7).

DECLINES IN ABSENTEEISM RATES

TalkingPoints led to an average 24% decrease in absenteeism rates across all grades with sufficient sample sizes (K-5, 7).

Legend:
- TalkingPoints Users
- Non-Users
- % Decline in absenteesim rates

Chart: ABSENTEEISM RATES by GRADE

Grade	Non-Users	TalkingPoints Users	% Decline
K	16.4	12.7	23%
1	13.9	11.2	20%
2	14.1	10.2	28%
3	13.6	10.6	22%
4	14.1	10.5	26%
5	13.7	10.5	24%
6	N/A	N/A	—
7	18.2	14.0	23%

IMPROVED ATTENDANCE

Improved attendance rates resulted in an average of two more instructional days per student for the Spring term. Extrapolating these results through the entire school year would mean an average of six additional instructional days per student. These improvements not only reduce classroom disruption for all students but also provide many more hours of instructional time for those who were previously absent.
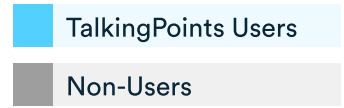
Legend: TalkingPoints Users | Non-Users | — Increase in avg. days attended —

Chart: AVERAGE DAYS ATTENDED by GRADE

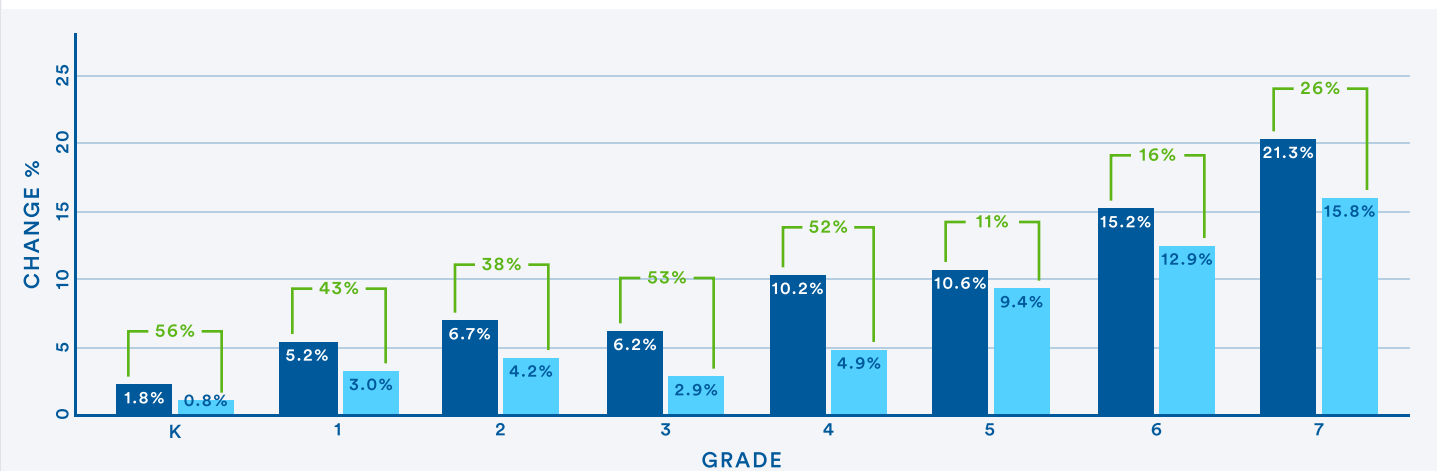| GRADE	Non-Users	TalkingPoints Users	Increase
K	50.1	52.4	2.3
1	51.7	53.3	1.6
2	51.5	53.9	2.4
3	51.9	53.7	1.8
4	51.5	53.7	2.2
5	51.8	53.7	2.0
6	N/A	N/A	N/A
7	49.1	51.6	2.5

Did results vary for students from Spanish-speaking vs. English-speaking households?

Tulsa Public Schools supports students who speak one or more of 72 languages, with multilingual learners comprising over 36% of the student body. To assess the impact of TalkingPoints on these students, researchers focused on Spanish-speaking students, the largest language group for whom sufficiently large data samples were available for analysis. The results showed that attendance improvements for students from Spanish-speaking households were more significant compared to those of their English-speaking peers.

INCREASED AVERAGE ATTENDANCE RATES FOR SPANISH-SPEAKING STUDENTS

Legend: English | Spanish | — % increase in avg. attendance rate —

Chart: CHANGE % by GRADE

GRADE	Spanish	English	% increase
K	1.8%	0.8%	56%
1	5.2%	3.0%	43%
2	6.7%	4.2%	38%
3	6.2%	2.9%	53%
4	10.2%	4.9%	52%
5	10.6%	9.4%	11%
6	15.2%	12.9%	16%
7	21.3%	15.8%	26%

RECOMMENDATIONS & NEXT STEPS

Based on our research, we recommend that schools and districts prioritize family-school partnerships as a critical strategy for improving student attendance. Attendance is known to be a leading indicator of expected future improvements in academic outcomes. Additionally, research demonstrates that effective family engagement practices can significantly impact other student outcomes, such as academics, behavior, and well-being. This study, which examined the initial impacts of family engagement on attendance, will be followed by further analysis from longer implementation periods to explore whether improvements in attendance linked to family engagement efforts result in academic or other outcome improvements.

By implementing effective family engagement as a high-impact strategy for improving student outcomes rather than as an initiative or goal in and of itself, districts can harness its power. Schools and districts should work to:

Build families' understanding of the importance of good attendance and provide practical advice on how they can support their children's attendance

Remove barriers to absence reporting for families and encourage them to feel comfortable sharing detailed reasons for absence

Analyze absence data from families to understand and address root causes

Partner with families to understand root causes to guide resource allocation

Establish trust-based relationships with families through regular, asset-based check-ins

When districts prioritize building trusting relationships with all families—nurturing these bonds consistently over time—capacity grows on all sides. Families gain a deeper understanding of how to collaborate with schools to support their students, teachers feel more confident and supported in engaging with families, student outcomes improve, and over time school and district performance also improves.

ACKNOWLEDGMENTS

TalkingPoints is an education technology nonprofit

that drives student outcomes by unlocking the superpower of effective family-school partnerships. The TalkingPoints Universal Family Engagement platform removes barriers so all families can engage. It provides educators with embedded, research-based guidance, actionable data-informed insights, and universally designed auto-translated two-way communication in families' preferred languages. Across districts nationwide, TalkingPoints has empowered more than five million educators and families, facilitating nearly one billion conversations that drive student success. To learn more, view our TED Talk or visit talkingpts.org.

TalkingPoints is a 501(c)3 nonprofit that is fueled by philanthropic contributions and licensing fees from school district partnerships. Every $10 donation is the equivalent of spending an additional $1400 on a student's education. Consider donating today!

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- **Attendance Works.** (n.d.). *The problem of chronic absence.* Attendance Works. https://www.attendanceworks.org/chronic-absence/the-problem/

- **Mapp, K., & Rogers, T.** (2024). Attendance is a family affair. *ASCD.* https://ascd.org/el/articles/attendance-is-a-family-affair

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Recommended Citation

Tan, X., Walker, L. & Luczkow, A. (2024). *Effective Family-School Partnerships Lead to Improved Student Attendance: How the TalkingPoints Universal Family Engagement Platform Decreased Absence in Tulsa Public Schools.* TalkingPoints.

TECHNICAL APPENDIX

To investigate the primary research question of whether there is any causal evidence about the relationship between TalkingPoints participation and improved attendance outcomes, this study employed a quasi-experimental methodology.

METHODOLOGY

Measures

In the district analyzed, the large-scale implementation began in the Winter term of the 2020-2021 school year. Consequently, Winter term attendance rates were used as the baseline measure, while Spring term attendance rates served as the outcome measure.

Attendance rates were calculated as the percentage of days and partial days a student was present at school. Due to the unavailability of data, the analysis did not differentiate between excused and unexcused absences.

To create comparable user and non-user groups, several pre-existing characteristics were considered: baseline attendance rate (att_rate_pre), participation in free or reduced-price lunch (frpl), gender (female), and race/ethnicity (Asian, Black, Hispanic/ Latine*, Native American, Multiracial, or Pacific Islander—race_A, race_B, race_H, race_I, race_M, race_P). Additional factors included whether the student was an Multilingual Learner (mll), identified by the Individuals with Disabilities Education Act (idea), participated in a gifted and talented program (gifted), or economically disadvantaged based on district-defined household income and size guidelines (disadvantaged).

Procedure

Propensity score matching (PSM) was employed to match students who utilized the tool with their non-user counterparts based on pre-existing characteristics. In this analysis, users were defined as those associated with at least one message, and the uptake rate was the percentage of users from the population.

The PSM procedure utilized pre-existing characteristics including baseline attendance rate, race/ethnicity, free or reduced-price lunch participation, MLL status, economic disadvantage, participation in gifted and talented programs, and disability status.

To evaluate the effectiveness of the matching process, the balance between user and non-user groups was assessed across all pre-existing characteristics. The standardized mean difference in these characteristics was compared to a threshold of an absolute value of 0.10 to determine if sufficient balance had been achieved.

The impact was estimated by comparing the spring attendance rates of students who participated in TalkingPoints with those who did not, using matched PSM subclasses. This comparison was performed through regression analysis, with spring attendance rate as the outcome variable and TalkingPoints participation as the predictor. An example of the regression model is provided in Equation 1 below.

$$Y_{1p} = \beta_0 + \beta_1 X_p + e_p,$$

Other terms may be used in schools.

where Y_{1p} is the spring attendance rate for student p,

β_0 is an intercept,

β_1 represents the impact,

X_p is an indicator of whether the student participated in TalkingPoints, and

e_p is a student-specific residual.

In accordance with best practices for impact estimation, the weights for each subclass from the PSM were incorporated into the models.

The impact was assessed using the original attendance rate metric. Additionally, the analysis was stratified by grade level (K, 1, 2,..., 11, 12) to investigate any differential impacts across grades.

Participants

The study includes students across grades K through 12 in a large urban school district. The total sample includes 30,132 students across 71 schools. The sample was diverse. Table T1 summarizes the sample by race/ethnicity. Table T2 summarizes the sample by other pre-existing characteristics. Table T3 summarizes the uptake rates by grade.

Table T1. Sample Race/Ethnicity Distribution

Grade	N	Asian	Black	Hispanic /Latine	American Indian	Multiple	Pacific Islander
K	2,517	1.43%	20.38%	34.68%	4.69%	13.95%	0.60%
1	2,580	1.78%	21.28%	37.33%	4.38%	12.48%	1.20%
2	2,577	1.44%	21.85%	37.72%	4.35%	11.37%	1.20%
3	2,505	1.80%	23.51%	36.93%	4.51%	11.10%	1.48%
4	2,572	1.44%	22.28%	39.27%	4.55%	10.23%	1.09%
5	2,442	1.23%	22.44%	35.75%	5.41%	9.95%	0.90%
6	2,307	1.08%	21.85%	39.36%	5.07%	9.06%	0.95%
7	2,247	1.42%	22.83%	36.94%	5.52%	9.57%	1.02%
8	2,259	1.77%	23.77%	38.91%	4.96%	9.16%	1.02%
9	2,299	1.44%	26.79%	36.15%	5.09%	8.61%	0.96%
10	1,881	1.70%	24.67%	33.76%	5.26%	9.46%	0.69%
11	1,963	2.24%	25.47%	34.74%	5.76%	7.79%	0.51%
12	1,983	1.61%	27.18%	33.89%	5.35%	7.72%	0.45%

Table T2. Sample Demographics

Grade	N	FRPL	MLL	IDEA	Gifted
K	2,517	100.00%	31.70%	7.35%	3.02%
1	2,580	100.00%	33.49%	10.58%	7.05%
2	2,577	100.00%	35.23%	13.00%	12.73%
3	2,505	100.00%	34.81%	14.29%	14.89%
4	2,572	100.00%	34.68%	18.27%	13.26%
5	2,442	100.00%	29.65%	20.15%	13.55%
6	2,307	90.07%	29.09%	20.03%	14.82%
7	2,247	83.89%	25.95%	20.20%	14.82%
8	2,259	81.98%	22.05%	19.83%	13.01%
9	2,299	79.56%	13.75%	18.44%	11.40%
10	1,881	73.68%	12.97%	17.54%	13.50%
11	1,963	73.31%	12.99%	20.12%	15.89%
12	1,983	72.92%	13.51%	18.51%	14.42%

Table T3. Uptake Rates

Grade	Users	Non-users	Total	Uptake Rate
K	954	1,563	2,517	37.90%
1	964	1,616	2,580	37.36%
2	1,053	1,524	2,577	40.86%
3	979	1,526	2,505	39.08%
4	1,133	1,439	2,572	44.05%
5	442	2,000	2,442	18.10%
6	690	1,617	2,307	29.91%
7	1,004	1,243	2,247	44.68%
8	41	2,218	2,259	1.81%
9	75	2,224	2,299	3.26%
10	42	1,839	1,881	2.23%
11	54	1,909	1,963	2.75%
12	16	1,967	1,983	0.81%

Results

The results of the propensity score matching (PSM) produced sufficiently equivalent groups in Kindergarten through Fifth Grade as well as Seventh Grade (Tables T4-T9, T11). Given the good balance between the treated and control groups after matching, the results in terms of impact can be thought of as quasi-experimental results showing some causal evidence. However, is also possible that there may be additional unobserved differences between the user and non-user groups at baseline, particularly since the user groups chose to send at least one message. In the other grades, one or more of the standardized mean differences in the observed pre-existing characteristic variables were greater than an absolute value of 0.10, meaning that there are likely still significant differences between the user and non-user groups, even after PSM. Part of the reason that the PSM may have failed in these upper grades is that the participation of TalkingPoints was relatively lower in these grades, resulting in a smaller match sample and a larger impact of slight differences in the balance overall. Given the lack of balance in the user and non-user groups for Sixth grade and Grades 8-12, the impacts should be thought of as correlational results.

Table T4. Kindergarten Balance Results

	Mean for TalkingPoints Participants	Mean for Non-Participants	SMD
distance	0.379	0.379	0.002
att_rate_pre	85.829	84.976	0.048
frpl	1.000	1.000	0.000
female	0.488	0.474	0.028
race_A	0.018	0.014	0.036
race_B	0.202	0.197	0.012
race_H	0.345	0.346	-0.002
race_I	0.055	0.048	0.033
race_M	0.117	0.143	-0.075
race_P	0.005	0.006	-0.017
mll	0.319	0.316	0.007
idea	0.070	0.085	-0.057
gifted	0.029	0.032	-0.02
disadvantaged	0.776	0.795	-0.047

Table T5. First Grade Balance Results

	Mean for TalkingPoints Participants	Mean for Non-Participants	SMD
distance	0.374	0.374	0.000
att_rate_pre	84.272	84.042	0.011
frpl	1.000	1.000	0.000
female	0.478	0.486	-0.015
race_A	0.016	0.018	-0.013
race_B	0.227	0.209	0.045
race_H	0.364	0.375	-0.022
race_I	0.037	0.046	-0.047
race_M	0.135	0.124	0.034
race_P	0.007	0.012	-0.050
mll	0.337	0.332	0.011
idea	0.116	0.113	0.011
gifted	0.087	0.070	0.067
disadvantaged	0.781	0.793	-0.029

Table T6. Second Grade Balance Results

	Mean for TalkingPoints Participants	Mean for Non-Participants	SMD
distance	0.409	0.409	0.000
att_rate_pre	84.621	84.805	-0.010
frpl	1.000	1.000	0.000
female	0.485	0.483	0.003
race_A	0.016	0.015	0.003
race_B	0.243	0.211	0.079
race_H	0.376	0.374	0.004
race_I	0.033	0.046	-0.063
race_M	0.107	0.116	-0.029
race_P	0.008	0.014	-0.053
mll	0.350	0.352	-0.005
idea	0.147	0.131	0.047
gifted	0.139	0.121	0.055
disadvantaged	0.781	0.797	-0.040

Table T7. Third Grade Balance Results

	Mean for TalkingPoints Participants	Mean for Non-Participants	SMD
distance	0.391	0.391	0.000
att_rate_pre	86.051	84.624	0.075
frpl	1.000	1.000	0.000
female	0.486	0.497	-0.021
race_A	0.015	0.018	-0.028
race_B	0.224	0.233	-0.021
race_H	0.373	0.364	0.019
race_I	0.046	0.048	-0.009
race_M	0.109	0.11	-0.004
race_P	0.013	0.016	-0.025
mll	0.347	0.349	-0.005
idea	0.157	0.151	0.017
gifted	0.157	0.146	0.033
disadvantaged	0.781	0.805	-0.062

Table T8. Fourth Grade Balance Results

	Mean for TalkingPoints Participants	Mean for Non-Participants	SMD
distance	0.441	0.44	0.000
att_rate_pre	81.904	82.112	-0.010
frpl	1.000	1.000	0.000
female	0.486	0.491	-0.010
race_A	0.015	0.015	0.007
race_B	0.246	0.219	0.065
race_H	0.396	0.392	0.009
race_I	0.044	0.047	-0.013
race_M	0.092	0.101	-0.030
race_P	0.008	0.011	-0.027
mll	0.347	0.347	-0.001
idea	0.188	0.187	0.003
gifted	0.129	0.136	-0.021
disadvantaged	0.803	0.793	0.025

Table T9. Fifth Grade Balance Results

	Mean for TalkingPoints Participants	Mean for Non-Participants	SMD
distance	0.181	0.181	0.000
att_rate_pre	80.27	80.241	0.001
frpl	1.000	1.000	0.000
female	0.472	0.496	-0.048
race_A	0.010	0.013	-0.029
race_B	0.249	0.226	0.006
race_H	0.373	0.352	0.044
race_I	0.056	0.054	0.009
race_M	0.075	0.099	-0.087
race_P	0.006	0.010	-0.041
mll	0.295	0.296	-0.002
idea	0.191	0.205	-0.033
gifted	0.143	0.132	0.035
disadvantaged	0.812	0.81	0.007

Table T10. Sixth Grade Balance Results

	Mean for TalkingPoints Participants	Mean for Non-Participants	SMD
distance	0.299	0.299	0.003
att_rate_pre	73.829	75.37	-0.060
frpl	0.858	0.908	-0.164
female	0.487	0.496	-0.018
race_A	0.004	0.011	-0.065
race_B	0.198	0.225	-0.064
race_H	0.396	0.393	0.005
race_I	0.041	0.050	-0.045
race_M	0.127	0.090	0.134
race_P	0.012	0.009	0.036
mll	0.294	0.291	0.007
idea	0.215	0.200	0.038
gifted	0.151	0.143	0.023
disadvantaged	0.866	0.885	-0.059

Table T11. Seventh Grade Balance Results

	Mean for TalkingPoints Participants	Mean for Non-Participants	SMD
distance	0.447	0.447	0.001
att_rate_pre	68.85	69.783	-0.034
frpl	0.844	0.834	0.027
female	0.488	0.488	0.001
race_A	0.013	0.013	-0.004
race_B	0.237	0.232	0.012
race_H	0.367	0.37	-0.006
race_I	0.056	0.056	0.001
race_M	0.105	0.093	0.041
race_P	0.010	0.010	0.000
mll	0.267	0.256	0.025
idea	0.226	0.207	0.047
gifted	0.138	0.143	-0.014
disadvantaged	0.873	0.866	0.019

Table T12. Eighth Grade Balance Results

	Mean for TalkingPoints Participants	Mean for Non-Participants	SMD
distance	0.018	0.018	0.010
att_rate_pre	67.128	68.789	-0.064
frpl	0.872	0.819	0.142
female	0.364	0.491	-0.255
race_A	0.010	0.018	-0.036
race_B	0.226	0.237	-0.025
race_H	0.494	0.389	0.224
race_I	0.024	0.050	-0.117
race_M	0.071	0.092	-0.063
race_P	0.000	0.010	-0.144
mll	0.185	0.220	-0.084
idea	0.229	0.198	0.075
gifted	0.054	0.130	-0.290
disadvantaged	0.949	0.854	0.324

Table T13. Ninth Grade Balance Results

	Mean for TalkingPoints Participants	Mean for Non-Participants	SMD
distance	0.033	0.033	0.001
att_rate_pre	75.895	76.078	-0.006
frpl	0.799	0.796	0.009
female	0.587	0.495	0.185
race_A	0.001	0.014	-0.115
race_B	0.272	0.267	0.011
race_H	0.468	0.362	0.222
race_I	0.046	0.051	-0.024
race_M	0.038	0.086	-0.164
race_P	0.001	0.010	-0.083
mll	0.210	0.139	0.194
idea	0.204	0.185	0.049
gifted	0.048	0.114	-0.250
disadvantaged	0.816	0.830	-0.044

Table T14. Tenth Grade Balance Results

	Mean for TalkingPoints Participants	Mean for Non-Participants	SMD
distance	0.022	0.022	0.001
att_rate_pre	75.849	76.387	-0.019
frpl	0.674	0.737	-0.152
female	0.500	0.492	0.015
race_A	0.011	0.017	-0.036
race_B	0.255	0.247	0.016
race_H	0.381	0.337	0.093
race_I	0.021	0.052	-0.130
race_M	0.187	0.095	0.394
race_P	0.000	0.007	-0.117
mll	0.137	0.130	0.022
idea	0.155	0.176	-0.053
gifted	0.055	0.135	-0.281
disadvantaged	0.697	0.771	-0.186

Table T15. Eleventh Grade Balance Results

	Mean for TalkingPoints Participants	Mean for Non-Participants	SMD
distance	0.028	0.028	0.013
att_rate_pre	79.858	77.686	0.081
frpl	0.821	0.733	0.200
female	0.421	0.490	-0.139
race_A	0.000	0.023	-0.213
race_B	0.293	0.256	0.082
race_H	0.457	0.347	0.242
race_I	0.044	0.058	-0.058
race_M	0.064	0.078	-0.056
race_P	0.000	0.005	-0.101
mll	0.211	0.129	0.231
idea	0.226	0.201	0.060
gifted	0.118	0.158	-0.119
disadvantaged	0.873	0.782	0.225

Table T16. Twelfth Grade Balance Results

	Mean for TalkingPoints Participants	Mean for Non-Participants	SMD
distance	0.01	0.008	0.073
att_rate_pre	84.675	80.416	0.174
frpl	0.987	0.729	0.658
female	0.227	0.499	-0.580
race_A	0.000	0.016	-0.181
race_B	0.650	0.272	0.902
race_H	0.297	0.339	-0.086
race_I	0.000	0.054	-0.335
race_M	0.022	0.077	-0.166
race_P	0.000	0.005	-0.095
mll	0.172	0.135	0.095
idea	0.726	0.185	1.316
gifted	0.000	0.144	-0.579
disadvantaged	1.000	0.772	0.766

The impacts are shown in Table T17, where β_1 represents the impact or the difference between attendance rates for TalkingPoints users versus non-users.

Table T17. Regression Coefficients and Treatment Effects

Grade	N	β_0	95% CI for Intercept	β_1	95% CI	Balanced Sample
K	2,517	83.559**	[82.669, 84.450]	3.780**	[2.333, 5.227]	Yes
1	2,580	86.123**	[85.265, 86.981]	2.713**	[1.309, 4.118]	Yes
2	2,577	85.868**	[85.073, 86.663]	3.939**	[2.694, 5.183]	Yes
3	2,505	86.409**	[85.609, 87.208]	3.007**	[1.728, 4.286]	Yes
4	2,572	85.862**	[85.023, 86.702]	3.609**	[2.344, 4.873]	Yes
5	2,442	86.280**	[85.590, 86.970]	3.244**	[1.623, 4.866]	Yes
6	2,307	86.663**	[85.918, 87.408]	4.368**	[3.006, 5.730]	No
7	2,247	81.835**	[80.770, 82.900]	4.169**	[2.576, 5.762]	Yes
8	2,259	84.898**	[84.155, 85.641]	6.289**	[0.772, 11.806]	No
9	2,299	84.823**	[83.991, 85.655]	5.378**	[0.770, 9.985]	No
10	1,881	84.068**	[83.091, 85.046]	-2.545	[-9.090, 4.000]	No
11	1,963	84.216**	[83.289, 85.143]	4.912	[-0.678, 10.502]	No
12	1,983	84.872**	[84.021, 85.723]	-21.744**	[-31.221, -12.267]	No

*** represents a p-value less than 0.01, indicating significant results*

For the balanced samples, the results show statistically significant causal evidence of positive effects for Kindergarten through 5th grade and 7th grade. ($\beta1$ is significant, and Tables T4-T16 show no SMD greater than 0.1 in absolute value). In the other grades, the sample was not balanced, but the result was significant (Grades 6, 8, 9, 12), or the sample was not balanced and the result was not significant (Grades 10-11). In both of these situations, it is difficult to describe the impact of TalkingPoints use.

Dealing with Unbalanced Samples

One approach would be to add additional covariates to the model to control for baseline differences in the unbalanced groups. For each of the grades where sample balance was not achieved, there were one or more baseline characteristics where the difference between the TalkingPoints user group and the non-user group had a standardized mean difference of over 0.10 in absolute value. For example, in the 12th-grade sample, 98.7% of the users were enrolled in Free or Reduced-price lunch, whereas only 72.9% of the non-user group were. Adding an indicator of whether the student participated in free or reduced lunch might control for group differences in attendance rates for students who participate in free and reduced lunch versus those who do not, making it easier to tease out the association between TalkingPoints use and attendance outcomes. So, for each grade where sample balance was not achieved, covariates were added to the model to account for group differences in attendance outcomes across those covariates. Table T18 shows the model results for these models with additional controls for the unbalanced covariates. As shown in Table T18, in all grades except for 10 and 12, there is a positive statistically significant association between TalkingPoints usage and attendance rate after controlling for group differences at baseline. In grade 10, the relationship is negative but not significant, and in grade 12, it is negative and significant. It should be noted that in Grade 12, less than 1% of the class used TalkingPoints, and although it is possible to control for group differences between the treated and untreated groups, it is unlikely that this < 1% of students is representative of generalized 12th-grade outcomes as a result of using TalkingPoints. In summary, by controlling for group differences at baseline, it is easier to describe some

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of the relationships between TalkingPoints usage and the attendance rate outcome, and we find that the majority of these relationships are positive and statistically significant, but these results do not speak to causal evidence, and it is still difficult to generalize when the sample is not sufficient.

Table T18. Model Results Including Controls for Unbalanced Covariates

Term	Grade 6	8	9	10	11	12
β_0	92.860**	87.408**	83.729**	88.109**	88.254**	53.919**
β_1	4.188**	7.114**	6.410**	-2.423	5.989**	-20.191**
att_rate_pre						0.406**
disadvantaged		-4.387**		-0.981	-8.384**	-1.636
mll			-10.895**		-3.089**	
female		0.861	1.816**		1.286	1.494**
frpl	-6.436**	-1.93		-5.031		-0.679
gifted		8.545**	8.164**	7.765**	7.706**	3.901**
idea						-2.449**
race_A			11.486**		3.652	0.819
race_B						-1.848**
race_H		3.498**	1.990**		3.076**	
race_I		0.202		-4.597**		-2.938
race_M	-3.887**		-1.301	-2.229		-2.044
race_P		-8.846**		-24.873**	-14.817**	

*** represents a p-value less than 0.01, indicating significant results*