

***DESIGNING AND IMPLEMENTING
PROGRAM EVALUATIONS IN
ARTS EDUCATION: THE CASE OF
LITTLE KIDS ROCK***

M. Kathleen Thomas
Kristin Klopfenstein
Priyanka Singh

DESIGNING AND IMPLEMENTING PROGRAM EVALUATIONS IN ARTS EDUCATION: THE CASE OF LITTLE KIDS ROCK

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- Yann Nicolas of the Department of Studies and Future Trends, French Ministry of Culture and Communications
- Olivier Gergaud, Department of Finance and Economics, KEDGE Business School

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WHAT WE WANT TO DO: CONDUCT A PROGRAM EVALUATION OF LITTLE KIDS ROCK

Where we start...

- Quasi-experimental design using administrative education data from a school district in Texas-- Dallas Independent School District (DISD)

Where we hope to go...

- Randomized evaluation in another large, urban U.S. school district

BROAD RESEARCH QUESTION

How does the opportunity to participate in Little Kids Rock while in middle school affect individual student attendance?

- Also interested in eventually exploring other long-term education and labor market outcomes such as *college and career readiness*.

HOW WE PROPOSE TO ESTIMATE PROGRAM IMPACT USING EXISTING DATA

Examine data from the Dallas Independent School District (DISD) between 2008-2011.

- publicly available **school-level data** maintained by the Texas Education Agency's Academic Excellence Indicator System
- proprietary **student-level data** housed at The University of Texas at Dallas Education Research Center (UTD-ERC)



WHAT IS LITTLE KIDS ROCK?



Little Kids Rock is a national non-profit program in the United States that provides free musical instruments, teacher training, curriculum materials, and instruction for interested students in low-income school districts.

<https://www.youtube.com/watch?v=afn2bTCELoE>

ANECDOTAL EVIDENCE SUGGESTS THE PROGRAM MATTERS

“I have had parents tell me the only reason their kid is still in high school is because of Little Kids Rock.”—Rodney Dittmar

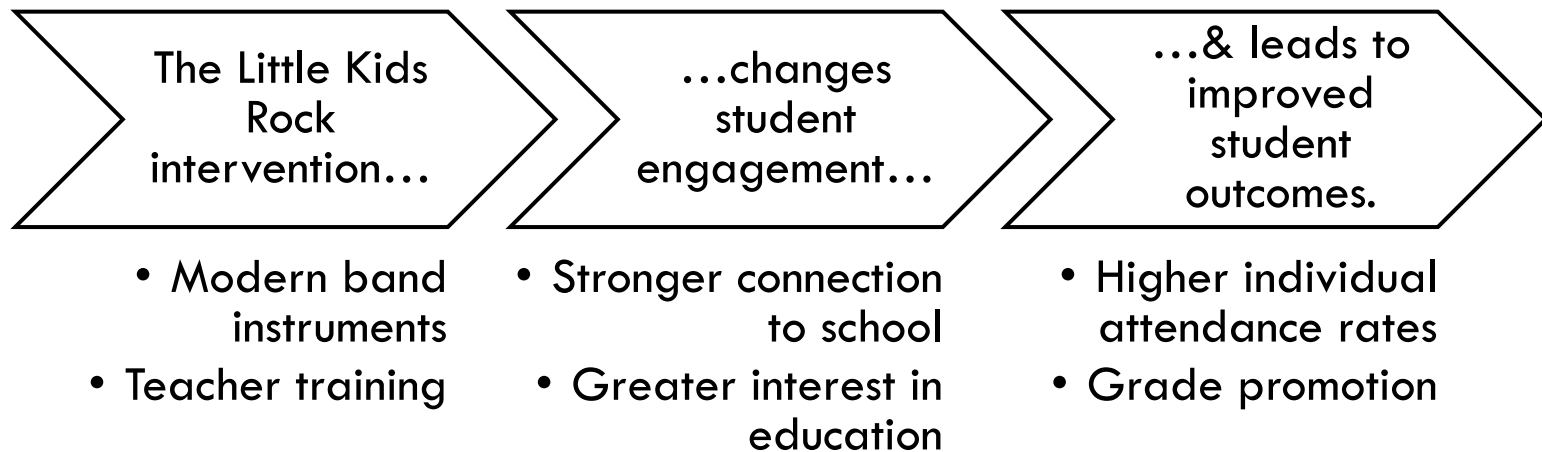
Little Kids Rock Regional Coordinator

Guitar Program Director Seagoville High School
Seagoville Middle School

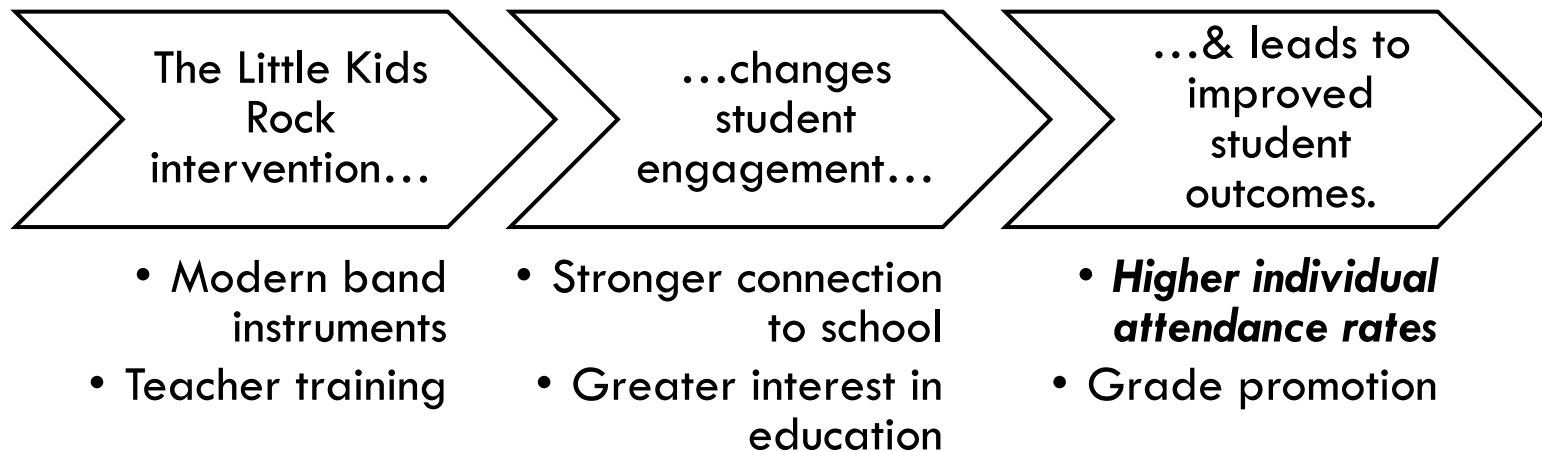
Dallas Independent School District



THEORY OF CHANGE



THEORY OF CHANGE



WHAT IS THE LITTLE KIDS ROCK INTERVENTION?

Providing modern band instruments to low-income schools

- Electric guitar
- Keyboard

Training teachers how to teach modern band in a one-day professional development workshop

- Hip-hop
- Funk
- Heavy metal

Providing ongoing support with online curriculum materials

- Jam cards
- Access to LKR staff

Photo taken at DISD LKR Jam Summit
May 2012



OUTCOME OF INTEREST: ATTENDANCE

Why is monitoring attendance important?

Chronic Absenteeism:

- Defined as missing 10 percent of the academic year for any reason—excused or unexcused (Balfanz & Byrnes 2012).
- **10 - 15 percent** of U.S. public school students are estimated to be chronically absent.

SOURCE: EDSOURCE.ORG

Who Can Read on Grade Level After 3rd Grade?³



of kids with good attendance in K and 1st
(missed 9 or fewer days both years)



of kids with at-risk attendance
(missed more than 9 days both years)



of kids chronically absent in K or 1st
(missed 18 or more days one year)



of kids chronically absent in K and 1st
(missed 18 or more days both years)

Table 5: Distribution of individual attendance rates for the chronically absent

1 percent	39.5
5 percent	62.8
10 percent	70.3
25 percent	79.4
50 percent	84.6
75 percent	87.4
90 percent	88.8
95 percent	89.1
99 percent	89.3
Mean	81.5
<i>Number of students</i>	<i>1,468</i>

Source: UTD-ERC

Note: The students in the chronically absent subgroup have individual attendance rates less than 89.5 percent.

U.S. ATTENDANCE CAMPAIGNS



MAKE SURE YOUR CHILD
IS IN SCHOOL EVERY DAY.



IDENTIFYING A CAUSAL EFFECT

1. We use propensity score matching at the school-level to form a control group of observationally similar middle schools that do not have the Little Kids Rock program.
2. Control for a rich set of school and student characteristics expected to influence treatment and our outcome of interest, individual attendance rates.
3. Will use a difference in differences approach to control for any time-trend expected to influence both treated and non-treated students in the same way.

PROPENSITY SCORE MATCHING

After making appropriate exclusions, we match on

- average daily attendance
- percentage of low-income students
- 8th grade passing rates for the math Texas Assessment of Knowledge in Skills (TAKS)

Baseline equivalence between treatment and control groups

- difference in means is less than 0.25 adjusted standard deviations



Table 1: Descriptive Statistics for Matched Treatment and Control Middle Schools

	Mean (Standard Deviation)		
	Little Kids Rock	Control	Pooled Sample
Percent average daily attendance	95.21 (1.28)	94.53 (1.59)	94.93 (1.40)
Percent low-income	83.92 (7.14)	84.56 (7.50)	84.40 (7.47)
Math TAKS pass rates	56.97 (11.92)	55.40 (13.49)	56.94 (12.95)
<i>Number of observations</i>	<i>8</i>	<i>10</i>	<i>18</i>

DIFFERENCE IN DIFFERENCES

$$(Y_{post}^T - Y_{pre}^T) - (Y_{post}^C - Y_{pre}^C)$$

Subtract the difference in outcomes (Y) before and after program implementation from the control group from the difference in outcomes before and after program implementation for the treated group:

Data before the program for treated subjects	Data before the program for control subjects
Data after the program for treated subjects	Data after the program for control subjects

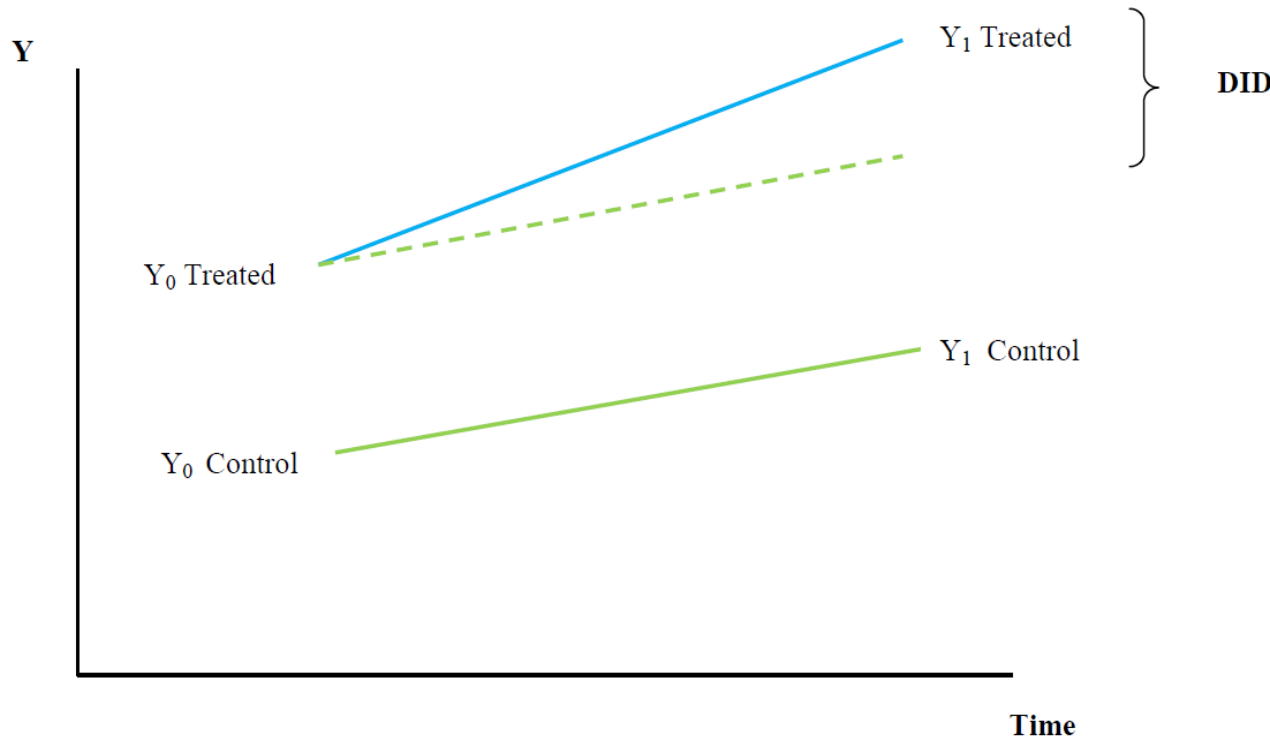
DIFFERENCE IN DIFFERENCES

$$(Y_{post}^T - Y_{pre}^T) - (Y_{post}^C - Y_{pre}^C)$$

Subtract the difference in outcomes (Y) before and after program implementation from the control group from the difference in outcomes before and after program implementation for the treated group:

Data before the program for treated subjects	Data before the program for control subjects
Data after the program for treated subjects	Data after the program for control subjects

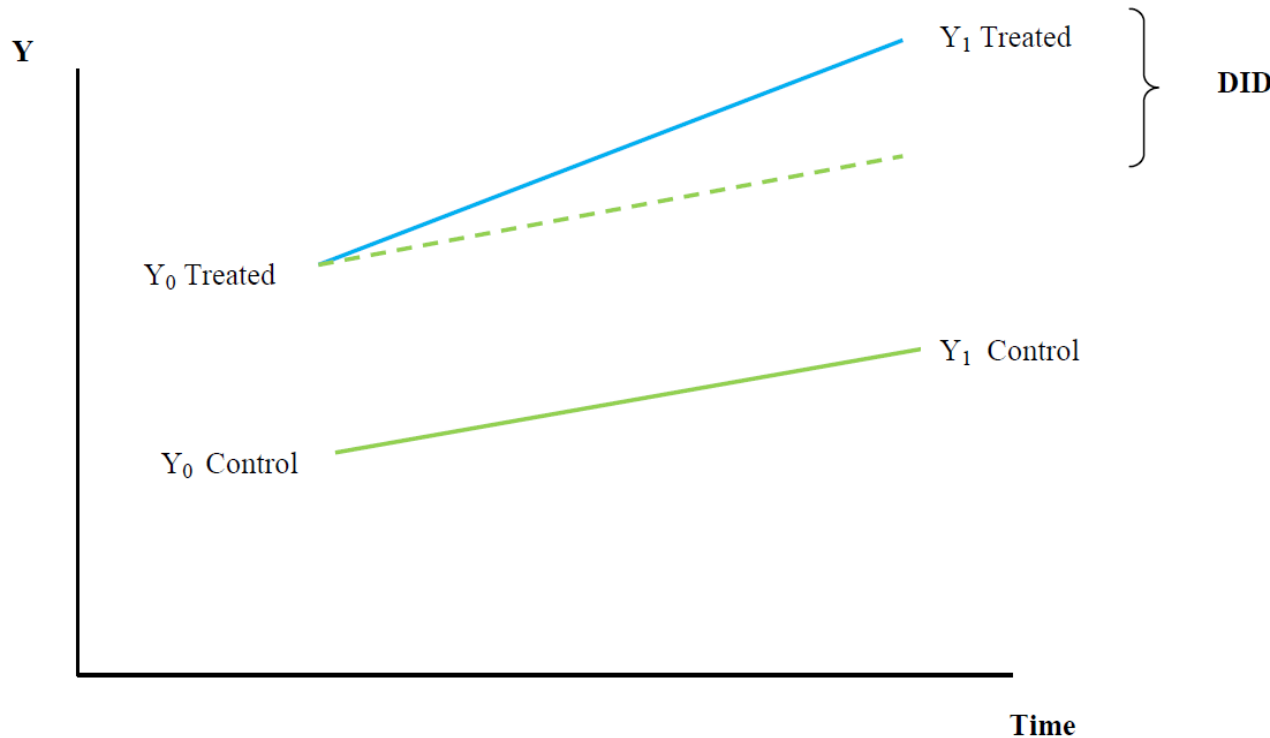
DIFFERENCE IN DIFFERENCES



$Y_1^T - Y_1^C$ naive estimate of treatment effect.

Difference in differences model subtracts out the difference in outcomes for a control group from the difference in outcomes for the treated group.

DIFFERENCE IN DIFFERENCES



The difference in outcomes we observe for the control group forms the counterfactual we use to adjust the naïve treatment effect.

represents that counterfactual: What would the differences in outcomes be for the treated group if they had not received treatment?

Table 4: Select student characteristics for pooled repeated cross-sections of 8th graders (2008-2011)

	Mean (Std Dev)	Min	Max
Percent days attended	94.95 (6.25)	15	100
Attended Little Kids Rock middle school	0.359 (0.48)	0	1
Economically disadvantaged	0.899 (0.301)	0	1
Black	0.281 (0.45)	0	1
Hispanic	0.663 (0.473)	0	1
At-risk	0.524 (0.499)	0	1
Limited English proficiency	0.208 (0.406)	0	1
Math TAKS (z-score)	-.076 (1.03)	-5.3	1.5

Source: UTD-ERC

WHERE WE ARE WITH OBSERVATIONAL STUDY

Once we acquire additional data on Dallas middle school students in all treatment and control schools *prior* to program implementation, we can conduct the difference in differences analysis.

WHAT DO WE KNOW?

What do our preliminary results tell us?

- Not much. Although we have some observations from before program implementation, we don't have all we need added to our analytic sample--still data management to complete.
- **Optimistic View:** Adding those observations could allow us to pick up a program effect.
- **Pessimistic View? Realistic View?** We may be underpowered. May not be able to detect a statistically significant effect with the current research design.

NEW DEVELOPMENTS: POSSIBLE RCT

In discussions with district official, Little Kids Rock, and other partners about evaluating a more comprehensive music intervention in a large, urban school district in the northeastern United States.

The district has chosen a demonstration site and will be testing proof of concept this year.

We hope to evaluate a **randomized** rollout in additional schools after district determines the success of the demonstration site.

Image source:
<http://www.k12blueprint.com/evaluation>

