Technical Report

THE EFFECTS AND IMPLEMENTATION OF RESTORATIVE PRACTICES FOR DISCIPLINE IN NEW ORLEANS SCHOOLS

EDUCATION RESEARCH ALLIANCE FOR NEW ORLEANS

Beth Glenn, Tulane University
Nathan Barrett, The Coleridge Initiative
Estilla S. Lightfoot, Tulane University

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Abstract: Restorative practices are an emerging alternative to exclusionary discipline that focus on responding to misbehavior by repairing harm to relationships, rather than on punishment. Forty-one percent of schools nationwide report some level of restorative practices use, but few studies rigorously measure their effects. We add to this growing literature using a mixed methods analysis including a quasi-experimental, doubly robust identification strategy and local qualitative evidence. Our quantitative results suggest suspensions overall may have declined after restorative practices were introduced; effects tend to be negative but marginally significant. However, we find consistent and significant declines in suspensions for *violent* behavior in all three post-implementation years for previously suspended students. Interviews at two of the treatment schools indicate that students and staff perceived a change in discipline policy and strengthened intra-school relationships when engaging in restorative practices. Using both types of data, we explore differences in school-level implementation. In our quantitative analyses, we find that schools with differing levels of implementation intensity experience different timing, size, and patterns of effects. Our qualitative analysis indicates that the two schools devoted different levels of commitment and resources to restorative practices, and that restorative practices can be impacted by exogenous school-level factors. Both of these led to differences in perceived efficacy of restorative practices. While there are inherent difficulties in studying the effects of restorative practices, our results provide at least suggestive evidence that the approach has its intended effect of reducing exclusionary discipline and perhaps misbehavior.

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Author Information: Beth Glenn (corresponding author) is a Senior Research Fellow at Education Research Alliance for New Orleans at Tulane University (mglenn@tulane.edu).
Nathan Barrett is the Director of Training & Outreach at the Coleridge Initiative (nathan.barrett@coleridgeinitiative.org).
Estilla Lightfoot is a Graduate Research Associate at the Education Research Alliance for New Orleans and a Doctoral Candidate in Social Work – City, Culture, and Community at Tulane University (elightfo@tulane.edu).

I. Introduction.

School discipline is one of the most intensely debated topics in K-12 education. In the United States, schools have traditionally relied on punitive discipline, including removing students from the classroom (Adams, 2000). Rates of exclusionary discipline (suspensions and expulsions) have increased in recent decades with the rise of zero tolerance policies (American Psychological Association Zero Tolerance Task Force, 2008). Advocates argue that removing disruptive students from the classroom may both discourage future misbehavior and prevent unwanted negative spillovers to classmates. However, research shows school exclusion disproportionately falls on minority students (e.g. Balfanz et al., 2014; Shollenberger, 2015; Togut, 2011; Barrett et al., 2019) and increases the likelihood of undesirable outcomes, like school dropout (Sorensen et al., 2019; Lacoe & Steinberg, 2019; Anderson, 2020; Hinze-Pifer & Sartain, 2018; Bacher-Hicks et al., 2019).

Because of growing concern about the effects of exclusionary practices on affected students, multiple states have passed laws emphasizing alternatives to exclusionary discipline, including restorative practices (Rafa, 2019). Growing out of emerging practices in the judicial system (Evans & Vaandering, 2016), restorative practices emphasize repairing harm done by an action rather than punishment for that action. Restorative circles, a common element of restorative practices, are conferences where the group of individuals involved in an incident come together to discuss what harm was done, how to repair the harm, and how to repair the relationships (Acosta et al., 2016; Wearmouth & Berryman, 2012). Forty-one percent of a nationally representative sample of schools in the United States reported using some level of restorative circles in 2017-2018 (Diliberti et al., 2019).

Despite the number of schools using restorative practices – and the wealth of qualitative literature on its mechanisms – its quantitative effects are not well-studied. The few papers using

causal methods have found restorative practices decrease student suspension (Augustine et al., 2018; Davison et al., 2019). Even these causal studies lack detailed data on circle implementation, and most lack data on comparison schools' use of restorative practices. We expand the literature with a mixed methods analysis where both the qualitative and quantitative portions examine how implementation varies over schools. Our quantitative analysis uses multiple data sources on school-level restorative practices in New Orleans. Our primary data are from a local restorative practices nonprofit, and detail partnered schools' restorative circles. Additionally, New Orleans has an almost all-charter sector where schools self-report discipline practices to a local parents' guide. The combination of these data sources allows us to identify treatment and comparison schools and measure different types of implementation intensity. We examine effects up to three years post-treatment, allowing us to observe treatment effects over time, including delayed effects. Finally, we provide qualitative evidence from semi-structured interviews at two of the treated schools to better understand implementation and differences across schools.

In our quantitative analysis, we use a doubly robust method with difference-in-differences and student-level matching to analyze the effect of restorative practices on student discipline outcomes. In each analysis, we compare changes in student outcomes over time at schools that begin utilizing restorative practices with schools that do not. We identify a comparison group for treated students with matching at the student-level based on demographics and the pre-trend of the outcome of interest. In our qualitative analysis, we use grounded theory coding methods on our sample to highlight emerging thematic similarities and differences in faculty members' and students' perceptions of restorative practices. We underscore these findings with direct quotes from the semi-structured interviews.

Our quantitative results suggest restorative practices had relatively few effects on exclusionary discipline for the overall student population except in the third year of implementation. In the third year of implementation, there is a marginally significant reduction of 0.07 suspensions per student per year, a 22 percent reduction from baseline. In this year, we also see reductions in number and days of suspension for non-violent infractions. This reduction in suspensions, as well as the timing of the reduction, corresponds to our qualitative findings. Interviewed students and staff agreed that restorative practices led to decreases in exclusionary discipline, but many interviewees also mentioned the individual- and school-level time investment needed for such a change.

We carry out subgroup analyses for students with suspensions prior to treatment. Because past suspension predicts future suspension, these students are the most likely to be affected by restorative approaches (Theriot et al., 2010).[1] For students with prior suspensions, half of the coefficients of interest are at least marginally significant. For this subgroup, we see marginally significant decreases in two of the years for number of suspensions (a decrease of 0.2) and days of suspension per student per year (a decrease of 0.5). These represent decreases of 30 percent and 35 percent from baseline, respectively.

Even in previous causal work, it is unclear if restorative practices cause changes in student behavior itself or changes in schools' responses to student behavior. We address this both by looking at infraction type and by looking at school-level implementation. If we expect that restorative practices rather than discipline policies change student behavior, we would expect schools with more circles to see greater reductions in student suspension. Further, if we expect

[1] Students with repeat suspensions may have unaddressed needs that lead to behavioral problems, past suspensions may lead to less attachment to schooling and thus repeat suspensions, or students with repeat suspensions may be more closely watched by teachers (Mendez, 2003).

that restorative practices change student behavior, we would expect to see changes in infraction types that are reported with a greater degree of fidelity.

To this end, we divide schools into groups based on circle usage. We find wide variation in the timing, significance and size of effects when comparing schools with different circle usage patterns. Schools vary both in how frequently circles are convened (captured in the quantitative data) and how thoroughly entrenched restorative practices are in school culture (captured in the qualitative data). Both the quantitative and qualitative evidence suggest that restorative practices' effects depend on its implementation.

This study makes several contributions to the existing literature. First, we provide one of the few causal analyses of restorative practices. Second, we present results for previously suspended students, an under-studied population most likely to be affected by changing discipline policies. Third, we have a combination of data sources that allow us to more accurately assign schools to treatment and comparison conditions, and to describe the school-level intervention in greater detail. Finally, we employ mixed methods with qualitative evidence in the same setting. This qualitative evidence allows us to examine how schools implemented restorative practices differently and how changes were perceived on-the-ground, including effects on harder-to-measure concepts like relationship strength and feelings of respect and belonging.

II. Background.

This section follows with (i) a brief history of exclusionary discipline and its evolution in the modern United States, (ii) the effects of exclusionary discipline, (iii) a brief history of

restorative practices in the United States, and (iv) the emerging literature on restorative practices' effects.

i. History of exclusionary discipline.

Historically, school discipline in the United States has relied predominantly on punitive disciplinary practices. Corporal punishment[2] was the first system of school discipline in the United States. In the 1960s and early 1970s, corporal punishment began to fall out of favor as its effectiveness and appropriateness faced increasing scrutiny.[3] During the second half of the 20th century, schools turned to exclusionary practices such as suspension and expulsion to exercise control and maintain order (Adams, 2000). Exclusionary discipline systems respond to student behavior by removing the involved student with the goals of punishing that student, maintaining a peaceful school climate for other students, and deterring future misbehavior (Black, 2016; Hoxby, 2002; American Psychological Association Zero Tolerance Task Force, 2008).

Exclusionary discipline became more frequent when, in 1994, the Guns Free School Act required secondary schools to adopt a zero tolerance policy on weapons to receive federal funding (Mongan & Walker, 2012). Zero tolerance policies establish severe, predetermined consequences for behavioral infractions. Zero tolerance policies soon expanded to minor infractions through the application of the "broken windows" theory of policing to schools. This theory of policing, proposed by Kelling and Wilson (1982), holds that targeting minor offenses acts as a deterrent to major offenses. Through a series of court rulings, due process protections for expulsion were weakened and schools began to more broadly apply the zero tolerance

[2] Physical punishment such as caning or spanking.
[3] A number of states continue to allow corporal punishment by law (Font & Gershoff, 2017).

mandate of the Guns Free School Act to more minor, discretionary[4] discipline offenses (Black, 2015).

These changes led to the increasing prevalence of exclusionary discipline practices. In 1993, 15.2 percent of students in grades six through twelve had ever been suspended, while 1.5 percent had ever been expelled. In 2012, 19.6 percent of students in these grades had ever been suspended, while 2.2 percent had ever been expelled (U.S. Department of Education, 2016).

ii. Consequences of exclusionary discipline.

If exclusionary discipline discourages student misbehavior, then such discipline practices might be beneficial to the overall student population. Negative spillovers on student achievement and behavior from disruptive peers are well-documented (Hoxby, 2000; Carrell & Hoekstra, 2010; Fletcher, 2010; Gottfried, 2013). Recent research even suggests that exposure to a disruptive peer in a single year may lower classmates' combined future earnings by $80,000 (Carrell et al., 2018).

Nonetheless, the American Psychological Association Zero Tolerance Task Force (2008) advocated for schools to move away from zero tolerance and overreliance on exclusionary discipline because of its effects on excluded students. The Task Force found little evidence to support the claim that zero tolerance curbed student misbehavior. Moreover, exclusionary discipline disproportionately falls on students of color and students with disabilities (U.S. Department of Education Office for Civil Rights, 2019).

Students who are suspended miss school, fall behind academically, and become more likely to act out. Exclusionary discipline could create a cycle where suspension results in

[4] A discretionary discipline offense is an offense that is subject to the teacher's own interpretation, such as "willful disobedience" or "disrespectful behavior".

misbehavior, which then results in further suspension (Kline, 2016). This cycle culminates in student exclusion, misbehavior, lost days of learning, and worse long-term outcomes for the suspended student.

Causal work on the effect of suspension on student outcomes is relatively new but finds that suspension increases negative outcomes for students most likely to be suspended. These negative outcomes include lower achievement (Sorensen et al., 2019; Lacoe & Steinberg, 2019; Anderson, 2020; Hinze-Pifer & Sartain, 2018); lower attendance (Sorensen et al., 2019); lower likelihood of high school graduation (Sorensen et al., 2019; Bacher-Hicks et al., 2019); and a higher risk of interacting with the criminal justice system (Sorensen et al., 2019; Bacher-Hicks et al., 2019). Importantly, these causal papers find no support for the idea that student exclusion improves peers' academic performance (Sorensen et al., 2019; Lacoe & Steinberg, 2019; Anderson, 2020).

iii. History of restorative practices.

In the 1990s, experts began to look to restorative practices[5] as a viable alternative to exclusionary discipline in schools (Evans & Vaandering, 2016). Just as zero tolerance policies grew out of an application of broken windows policing, restorative practices in schools grew out of restorative justice in judicial settings. Within the judicial system, restorative justice is the theory that

> … crime consists of more than violation of the criminal law and defiance of government authority. Crime involves disruptions in a three-dimensional relationship of victim, community, and offender. Because crime harms the victim and the community, the

[5] There is some debate over the use of the term "restorative practices" versus "restorative justice" in educational settings. The term restorative justice has come to be more closely associated with the criminal justice system, and it refers to specific practices such as victim-offender conferences (Kehoe et al., 2018). In addition, not all parties who participate in restorative practices may believe that justice was the end result.

> primary goals should be to repair the harm and heal the victim and the community. (Kurki, 1999, p. 2)

Restorative practices have a long history in indigenous cultures such as the Maori culture in New Zealand and the Navajo culture in the southwestern United States (Kehoe et al., 2018). They first gained attention as a potential alternative to the criminal judicial system in Canada in 1974, when a probation officer arranged for two teenagers to meet with the victims of their vandalism to discuss reparation (Zehr, 2015b). In the United States, the Minnesota Restitution Center was founded two years earlier with the same concept, although it used the terminology "restitution" (Hudson, 2012). In contrast to retributive justice, which takes a punitive course of action to address wrongs done, restorative practices focus on strengthening relationships and community support to reduce the likelihood of recidivism. Over the past few decades these practices have gained popularity in New Zealand, Australia, the United Kingdom, Canada, and the United States as a means of diversion, sentence reduction, and victim reparations (Zehr, 2015a).

Restorative practices within schools provide a way to address student misbehavior without student exclusion from the community. Restorative practices instead help students repair and strengthen relationships within the community, learn socio-emotional skills, and include the student voice in the discipline process (Guckenberg et al., 2015).

A key component of restorative practices are restorative circles. During a restorative circle, participants discuss the incident and then, ideally, agree on a contract with specific steps to restore the relationship. The circle facilitator writes out the contract and follows up with participants regarding the completion of these steps in an agreed-upon timeline (Liberman & Katz, 2017). These circles can be coupled with exclusionary discipline or used in lieu of exclusionary discipline.

Outside of the use of restorative circles, there is less agreement on how to incorporate restorative practices (Guckenberg et al., 2015). Schools choose which aspects of restorative practices to incorporate, and there are a large range of approaches (Fronius et al., 2019; Guckenberg et al., 2015). Schools that incorporate restorative circles in a discipline system still centered around exclusionary discipline have an "add-on" or "hybrid" approach, while schools that fully embrace restorative practices as a driving part of school culture, using not only formal restorative circles but also informal restorative discussions and emphasis on affective language[6], have a "whole-school" approach.

A nationally representative randomized sample in the U.S. found that 41.6 percent of schools reported using restorative circles in 2017-2018 – up from 33.5 percent in 2015-2016 (Diliberti et al., 2019; Diliberti et al., 2017). In 2017-2018, half of the schools with more than 50 percent non-White enrollment reported using restorative circles, and schools with greater non-White enrollment were more likely to report restorative circle use (Diliberti et al., 2019).

iv. Consequences of restorative practices

Qualitative studies on restorative practices have captured student, faculty, administrator, and parent perspectives on both the value and the challenges of the approaches. Strong implementation relies on administrator support and teacher buy-in (Sandwick et al., 2019) and parental support (Ingraham et al., 2016), as well as student feelings of ownership (Sandwick et al., 2019), empowerment (Lustick et al., 2020), and belonging (Haney et al., 2011). Studies frequently find that when implemented competently and consistently as a whole school, restorative practices improve relationships (Knight & Wadhwa, 2014; Short et al., 2018),

[6] Affective language aims to elicit feelings about the impact of behaviors on a person without stigmatizing the offender by using "I feel" statements.

increase student feelings of safety and belonging (Sandwick et al., 2019) and increase use of socio-emotional skills including empathy and respect for others (Kehoe et al., 2018).

Given that the bulk of the quantitative evidence on restorative practices is correlational, we focus below on the few papers that use a comparison group.[7] Even in these causal studies, it is unclear whether restorative practices changed student behavior, or whether schools reacted to student behavior differently after changes in disciplinary policy.

The best evidence on restorative practices comes from a randomized control trial in the Pittsburgh Public Schools district where 44 schools were randomly assigned to be treated with a restorative practices intervention (Augustine et al., 2018).[8] The authors find treatment caused student suspensions to fall 13 percent from baseline and the number of days suspended to fall 16 percent from baseline, primarily for non-violent offenses and in elementary and high school grades. There is no evidence the program reduced student arrests, absences, or school transfers for the overall student population. Restorative practices decreased student academic achievement in middle school and had no effect on achievement in elementary or high school. This change in academic achievement could be caused by disruptive students remaining in the classroom and lowering peer performance, or by time spent on restorative practices diverting time away from content instruction.

Acosta et al. (2019), another randomized control trial, examines survey responses between students who attended schools that were or were not assigned to use restorative practices. The authors surveyed students on multiple dimensions of school climate pre- and post-

[7] See Darling-Hammond et al. (2020) for a thorough review of the quantitative literature.

[8] This curriculum emphasizes whole school change and identifies 11 essential elements: affective statements, restorative questions, small impromptu conferences, proactive circles, responsive circles, restorative conferences, fair process, reintegrative management of shame, restorative staff community, restorative approach with families, and fundamental hypothesis understandings.

treatment. They found no difference in perception of school climate between students at treated and control schools. However, students who reported greater experience with restorative practices themselves[9] reported more positive school climate, connectedness, and peer relationships post-treatment. The difference between findings for students at assigned treated schools and findings for students who experienced treatment was caused by some treatment schools not implementing the program consistently and some control schools beginning similar programs.

Davison, Penner, and Penner (2019) study the effect of school partnerships with a restorative practices nonprofit using quasi-experimental methods to deal with non-random treatment. They found treated schools significantly decreased their suspension rate, although racial disparities in discipline remained. Other, less rigorous studies focusing on single groups pre- and post-treatment, with no comparison group, also find significant drops in suspensions when restorative practices are implemented (Armour, 2015; Baker, 2009; Sumner et al., 2010).

Acosta et al. (2019) highlight one of the key internal validity issues with studying restorative practices: accurate assignment of schools to treatment and comparison groups. Additionally, effects may take time to materialize (Darling-Hammond et al., 2020), programs may not last long enough for effects to emerge (Guckenberg et al., 2015), it can be difficult to track outcomes (Ortega et al., 2016), and staff turnover may lead to uneven implementation (Guckenberg et al., 2015). We have the data to address these concerns, and we detail the relevant data in the next section.

[9] This measure was based on an index of questions about students' experience of specific restorative practices processes with their teachers. For example, students were surveyed on affective language use by rating on a Likert scale how true it was that "[Their] teacher encourages students to express their feelings" (Acosta et al., 2019).

III. The Intervention.

We examine discipline-related circles run by a local nonprofit in New Orleans. This nonprofit partners with schools to provide staff training and support, as well as the ability to refer students directly to the nonprofit for a circle. These circles can be classified as either prevention (taking place prior to a suspendable offense)[10] or intervention (taking place after a suspendable offense). Sixty-one percent of circles are intervention circles.

After a referral is submitted, there are multiple possible outcomes, depending on which step a referral reaches (Figure 1). These steps include (1) the nonprofit determining whether the referral is appropriate, (2) participants agreeing to the circle, (3) the circle resulting in a contract, and (4) participants completing the actions in the contract. For example, suppose Student A is referred for vandalizing Student B's locker. Assuming the nonprofit and participants agree to a circle, participants might decide Student A will work with Student B to repair the locker. The contract is fulfilled when the students work together to repair the locker. The emphasis is thus placed directly repairing damage (through fixing the locker) and restoring the sense of community (through the students working together), rather than on punishment and isolation from the community (through suspension).

We use school partnerships with the nonprofit to answer three questions about restorative practices. Did the use of restorative practices at a school reduce the average student's number of suspensions or days suspended? Did this effect vary depending on whether a student had been previously suspended? Did this effect vary based on schools' level of implementation?

[10] Prevention circles are formed in response to some type of behavioral infraction (albeit one that does not qualify for suspension).

IV. Data.

Data on circles conducted by the nonprofit were provided for the 2009-2010 school year through the 2015-2016 school year. These data include information on the dates of behavioral infraction, referral, and circle, as well as the number of participants in each circle, and the circle type (prevention or intervention) for each school that partnered with the nonprofit. We observe how far along each referral progressed in the process. The circle-level data do not include student identifiers, so circle-level data are aggregated up to the school-by-year level.

The Louisiana Department of Education provided student- and school-level data. We limit our analysis to the years 2007-2008 through 2015-2016, two years prior to the first school partnering with the nonprofit through the end of the circle-level data. We do not include later years because we cannot observe treatment status or implementation in these years.[11]

Student-level data include information on enrollments, demographics, discipline, and achievement. The discipline data include type of infraction, date of infraction, resulting discipline (in-school, out-of-school, or alternative site suspension or expulsion), and number of days suspended or expelled. Discipline records include all infractions resulting in exclusionary discipline for any student; a student not observed in the discipline data in a year is assumed to not have experienced exclusionary discipline that year. Because the discipline records include only infractions that result in exclusionary discipline (suspension or expulsion), infractions that do not result in formal exclusionary discipline are not observed. Like other studies on the topic, we therefore focus on suspension (a consequence of student misbehavior) rather than student misbehavior itself, which cannot be observed in the data.

[11] Other nonprofits began partnering with schools to implement restorative practices in New Orleans in 2016-2017, making it difficult to establish a non-treated comparison group (T. Mogabgab, personal communication, Aug. 18, 2020). We exclude these for lack of data.

Along with these quantitative data, we also have evidence from qualitative analysis carried out in the same setting. After discussing our results, we connect our findings to this and other qualitative work.

i. Setting and Sample of Schools

The combination of student-level data and circle data allows us to study 41 schools who partnered with the nonprofit; of these, 33 are in Orleans Parish and eight are in neighboring Jefferson Parish. We omit the schools from Jefferson Parish because it has a districtwide policy of using restorative practices (Williams, 2015).

This focus on Orleans Parish leads to an additional methodological challenge: schools in New Orleans are more likely to open or close in a given year than in the average school district. After Hurricane Katrina, New Orleans experienced a large-scale school reform, where almost all traditional public schools were taken over by the state, attendance zones were largely eliminated, and families were allowed to choose from a variety of schools across the city. New Orleans is now a uniquely market-driven, high-accountability school system where almost all schools are publicly funded, privately run charter schools. Schools failing to meet test-based standards are frequently closed or taken over (see Bross et al., 2016). This environment results in more school churn than a traditional public school district, with some schools entering the market and some schools exiting each year. This creates an imbalanced panel.

In addition, not all treated schools began partnering with the nonprofit in the same year. To address these challenges, we align the panel using the first year that a school partners with the nonprofit, designated as year *t*. The year prior to the first year of partnership is *t-1*, and the year after the first year of partnership *t+1.* Information on the number of schools with data available for each treatment period (*t-2* through *t+2*) is shown in Table 2A (for treatment schools) and

Table 2B (for comparison schools). Data are not available for all schools for all periods: for example, four treatment schools partner with the nonprofit in their first year of opening, so data are available for year *t* through *t+2* but not any year prior to the partnership. Although school-level data is not always available prior to partnership, student-level discipline and demographic data is available prior to the partnership. Thus, we use student-level discipline and demographic data in the matching process (detailed in the next section) and to formally assess parallel trends.

In addition to schools entering and exiting the market, policies in this setting were also actively changing during the time period of our analysis. A centralized expulsion system was implemented in 2010 as a result of a Southern Poverty Law Center lawsuit arguing schools were not meeting special education students' needs and were ignoring federal law concerning the discipline of students with disabilities (Hernández, 2019). This lawsuit arose after public pushback of schools' use of exclusionary discipline (Charpentier, 2008; Carr, 2012). Prior work has indicated that exclusionary discipline rates in New Orleans rose until 2010 (the year the SPLC lawsuit was filed) and then fell, eventually reaching their pre-reform level by 2012 (Hernández, 2019). Thus, the lawsuit probably led schools to seek ways to decrease the rate of exclusionary discipline.

Some schools likely engaged in restorative practices without the nonprofit. *The New Orleans Parents' Guide to Public Schools*, an educational resource for parents, began providing information on schools' self-reported discipline practices in the 2014-2015 school year. We exclude any school from the comparison group that did not partner with the nonprofit but did report restorative practices use to the *Parents' Guide*.[12]

[12] Out of 107 possible comparison schools, this leads us to drop 13 of them (12.1 percent).

V. Methodology.

i. Difference-in-Differences

We employ a dynamic difference-in-difference model with two-stage matching to estimate the effect of treatment on student-level discipline outcomes. Formally, the difference-in-difference model is given by

$$(1)\ Y_{ist} = \alpha_0 + \delta_0 R_i + \gamma_t d_t + \sum_{r=-m}^{q} \beta_r (R_i \cdot d_{t+r}) + \sigma X_{it} + \theta_s + \varphi_{st} + \varepsilon_{it}$$

Where Y_{ist} is the outcome of interest for student *i* at school *s* at time *t*. We include one- and two-year lags of the outcome of interest. The vector d_{t+r} contains indicators for the number of time periods from the year a treated school began submitting referrals to the nonprofit (from *m* years prior to the first year and to *q* years after).[13] R_i indicates whether a student attended a school in the first year of restorative practices adoption. School-level fixed effects are represented by θ_s; vector φ_{st} controls for time-varying school-level performance score grade letters .[14] Vector X_{it} controls for student-level characteristics.[15] We cluster standard errors at the school level.

A dynamic difference-in-difference model, or event study, is preferable to a standard two-period model here because a two-period model assumes treatment effects are constant, with no change in the effect of treatment over time (Wolfers, 2006). Allowing for dynamic treatment effects is especially important in our context, as school discipline practices and student behavior may take multiple years to change (Guckenberg et al., 2015). Difference-in-difference analyses rely on the assumption of parallel trends: absent treatment, the treated and comparison groups

[13] If a school is in the comparison group, the vector d_{t+r} contains indicators for the distance from the year the comparison student's matched treated student's school first recorded restorative practice usage.

[14] Louisiana uses a five-tier School Performance Score (SPS) based on grade letters (A-F). SPS is calculated primarily using student achievement data, although different formulae are used to assess elementary, middle, and high school grade levels. SPS formulae change over the period of analysis, which is one reason we limit comparison schools to similar schools in the same year.

[15] These include gender, grade, race, special needs status, English language learner status, and free- and reduced-price lunch status.

would have had the same outcome trajectory. To test whether this assumption is violated in the pre-treatment period, we present effect estimates for treated and comparison groups pre-treatment.

ii. Matching.

Systematic differences between groups that did or did not opt into a program are a key threat to validity for any program evaluation. We employ a matching strategy to mitigate this concern. Additionally, matching and regression adjustment combined generally produce less biased estimates than controlling for covariates alone, and matching relaxes the parametric assumptions required for regression (Rubin, 1973).

We use a two-stage matching process. First, we identify comparison schools for each treated school. We then construct propensity scores for a student's likelihood of attending a treated school by using observable characteristics to match treated students to similar peers. In order for matching to approximate causal estimates, matches should be as similar as possible (Heckman et al., 1998). Two ways to maximize similarity are to pull the comparison and treatment groups from the same environment and match based on key covariates, including lagged outcomes of interest.

We identify comparison schools that meet the following conditions: (1) serve the same grade range as the treated school, (2) operate in Orleans Parish, (3) have similar letter grades of school performance[16] to the treated school, (4) never partnered with the restorative practices nonprofit, and (5) never self-reported the use of restorative practices to the *Parents' Guide*. Treated schools can be matched to multiple comparison schools.

[16] We match schools with the same letter grade, although we group A and B schools together due to the small number of them.

We use nearest neighbor propensity scores to match treated students to similar students in the comparison schools. Students are placed based on the school they attended the year prior to treatment, using the pre-trend of the outcome of interest (the difference between the one-year lag and two-year lag of the outcome of interest) and demographic information. We calculate the propensity score as

(2) $R_{ist} = f_0 + f_1(C_{i,t-1} - C_{i,t-2}) + f_3\boldsymbol{X}_{i,t}$

where R_{ist} identifies the likelihood student *i* will be attending a school using restorative practices through the nonprofit in year *t.* The variables $C_{i,t-1}$ and $C_{i,t-2}$ are student *i*'s outcome of interest one year prior and two years prior to *t*, respectively; we examine their difference to find the pre-trend. The vector $\boldsymbol{X}_{i,t}$ contains student demographic information.[17] We use nearest neighbor matching without replacement. This matching method was chosen over others because it results in the most similar baseline characteristics and the most similar pre-trends.

We examine the effect of this matching process on the similarity of baseline covariates between the treated and comparison groups in Table 1.A (for the overall student population) and Table 1.B (for the population of students suspended prior to treatment).[18] We present averages and statistically significant differences for both groups. Prior to matching, treated schools have a larger percentage of Black students and a larger percentage of students who receive free- and reduced-price lunch than comparison students prior to matching. Matching ameliorates these differences.

Some differences between the two groups on the primary outcomes of interest (number of suspensions and days of suspensions) remain significant. This is likely because suspensions are

[17] Demographic information includes student gender, race, free- and reduced-lunch status, and English Language Learner status.
[18] Table 1.C displays differences between treatment schools and comparison schools pre-treatment.

not the main factors predicting student attendance at a school that adopts restorative practices.[19] Although the baseline outcome of interest remains statistically different between the two groups, the magnitude of the difference is arguably modest (22 percent of the restorative practices baseline for number of suspensions and 17 percent of the restorative practices baseline for days of suspensions), and we include lags of the outcome of interest in the treatment analyses to account for these baseline differences. Appendix A presents the standardized differences for treated and control groups.

VI. Implementation.

Restorative circles are a predominant part of restorative practices, and one contribution of this study is providing more detailed data about their use. We are able to examine the average number of circles, average type of circles, and the average success of circles at each school. We can only examine circles facilitated by the nonprofit; we cannot observe school-driven restorative practices.

Even though all treated schools partner with the same nonprofit, the number of circles per year at each school varies substantially. Figure 2 shows that most schools conduct few circles. The median treated school has four circles in the average year. However, the average is much higher (13 circles), reflecting a skewed distribution.

To categorize schools into different levels of implementation intensity, we place schools into quartiles based on the observed average number of circles each year. This allows us to discuss the relative differences between schools and provides subgroups for later analyses. Schools in the top quartile of circle use have more than 13 circles in an average year; schools in the bottom

[19] In Table A1, we present the regression results for the propensity score matching, which show that the main factors predicting student attendance are race, ELL status, and FRPL status. In addition, when we compare models in which the propensity score is estimated with and without lagged discipline outcomes, the fit between the two models is similar: suspensions do not reliably predict or help explain the propensity to attend a school using restorative practices.

quartile of circle use have three or fewer circles a year in an average year. Figure 3 presents the number of circles in a year for schools in the top, second and third, and bottom quartiles of circle use. The number of schools partnering with the nonprofit increases over the treatment period, but the share of schools in each quartile remains relatively stable.

In addition, 41 percent of schools report restorative practices in *The New Orleans Parents' Guide*. Over half of schools in the top quartile of circle number report using restorative practices to *The New Orleans Parents' Guide*; only 13 percent of schools in the bottom quartile do. We conclude categorization of schools into quartiles based on circle number reflects consistent behavior among schools.

Another way we examine implementation is by the percent of circles that are prevention circles. Again, there is wide variation. We find that at the average school, 29 percent of circles are prevention circles. Schools in the bottom quartile of prevention circles have 17 percent or fewer circles that are prevention. Schools in the top quartile have 48 percent or more circles that are prevention. The remaining circles occur after the offense (intervention circles).

The final way we measure implementation is the number of circles at a school that result in agreed-upon contracts. Schools in the top quartile of contract creation have at least 70 percent of circles in an average year that result in a contract. Figure 4 shows the percent of circles in a year where a contract was reached, by number of circles. There is a wide range of average circle success, although there is a trend upward over time. Half of schools in the top quartile of circle contracts are also schools in the top quartile of prevention circles. Because schools in the top quartile of circle contracts do not perfectly align with schools in the top quartile of circle number or schools in the top quartile of prevention circles, we conclude that these measures capture different facets of implementation.

In addition, these measures all have different dynamics over time. The number of high or low circle schools is relatively stable. The percent of prevention circles is also relatively stable, although they represent less than 40 percent of circles in most schoolyears. However, the percent of circles with successful contracts notably trends up over time, for all school types. These trends suggest that the partnered group of schools continued having a similar number and type of circles over time but improved in their ability to have a circle result in a contract.

When examining average treatment effects, we provide estimates for each of the three implementation types.

VII. Average Treatment Effects.

The average treatment effects of restorative practices on discipline outcomes are given by the coefficients on *RP*Treatment Year* in Table 3. Estimates are based on Equation (1) with the matched sample. We provide all analyses for both the full sample of matched students and the subsample of students ever suspended prior to treatment. *RP Student* is an indicator for students who ever attend a restorative practices school. We have eighteen coefficients of interest for each panel because we look at three different discipline infraction types (all, violent, and non-violent), two different discipline outcomes (number and days of suspension), and three years of post-treatment data.

Table 3 Panel A presents results for all treated students. Only a few of the coefficients of interest are marginally significant, all in the third year of implementation. In that year, the average student at a restorative practices school has 0.07 fewer suspensions per year than their peers, a 22 percent decline from baseline. We also see reductions in number and days of suspension for non-violent infractions. The coefficient for number of non-violent suspensions is

77 percent of the size of the coefficient for all suspensions, suggesting the decrease in non-violent suspensions is driving the overall decline.

Our estimate sizes are comparable to, but slightly larger than, those found by other studies. Similar to our study, Davison, Penner, and Penner (2019) find no effect during the first or second year of treatment, but do find a reduction of 0.03 suspensions for the average student in the third year of treatment.[20] Augustine et al. (2018) found students at restorative practices schools had 0.04 fewer suspensions than students at control schools, a 13 percent reduction from baseline, and their effects are also concentrated on non-violent suspensions.[21] Our analyses do not indicate a decrease in days of suspension for the overall population, whereas Augustine et al. (2018) find a 16 percent reduction in days of suspension.

Table 3 Panel B presents results for the previously suspended subgroup. Overall, our results indicate restorative practices had a larger effect on these students. Half of the coefficients of interest are at least marginally significant, and the coefficients in general are much larger. There are marginally significant decreases in days and number for all suspensions in two of the years, representing approximately 35 and 32 percent reductions from baseline, respectively.

The pattern of marginally significant and negative coefficients for all students is only suggestive, because only three of eighteen coefficients are even marginally significant, and no coefficients are significant in multiple years. However, for students with prior suspensions, there are significant reductions in suspensions for violent infractions in every single year of implementation.

[20] Davison, Penner, & Penner (2019) do not provide baseline statistics for restorative practices schools prior to treatment.
[21] Augustine et al. (2018) only look at the effect during the second year of implementation, not the first or third year.

Because we cannot link the circle-level and student-level data, it is unclear whether any reduction is caused by circles substituting for suspension or is caused by lowering rates of student misbehavior. The concentration of significant effects among *violent* offenses for previously suspended students suggests that restorative approaches affect student misbehavior for this population.

For all analyses in both Panel A (all students) and Panel B (the previously suspended subgroup), *RP*1 Year Prior* is insignificant, meaning that all analyses pass the parallel trends test, and Figure 3 provides visual evidence of parallel trends.

i. Implementation Measured By Circle Number

We also look at effects for schools in the top and bottom quartile of circle number. If the restorative practices intervention causes a decrease in exclusionary discipline, then we would expect more intensive implementation to lead to larger reductions in suspension and less intensive implementation to lead to smaller reductions.

Looking at the overall student population in schools in the top quartile of circles, in Panel A of Table 4, there are almost no significant effects on any outcome or infraction type. For previously suspended students, shown in Panel B of Table 4, we see effects concentrated in the third year and for both all infractions and violent infractions. The effect sizes for number of suspensions are similar to the main results, but effect sizes for days of suspension are approximately twice the size of the main results. Results are less precisely estimated due to the smaller sample size.

Table 5 shows results for schools in the bottom quartile of circle number. For both the overall and previously suspended student populations, we see many significant reductions in the first year, a few effects in the second year, and a few effects in the third year. For both groups of

students, we see some reductions for all infraction types. These significant coefficients are slightly larger than the coefficients for the sample of all schools. All analyses pass the parallel trends tests.

While we do not find that more circles lead to larger reductions in suspensions, we do find a differential pattern of timing of suspension reduction where schools in the bottom quartile of circle number see effects primarily in the first year and schools in the top quartile see effects primarily in the third year. This pattern could be partially explained by how long the schools partnered with the nonprofit. Seventy-three percent of schools in the bottom quartile of circle number worked with the nonprofit for only one year. These schools may have seen reduced suspensions while the partnership was ongoing but little effect on suspensions when it ended. On the other hand, only 15 percent of schools in the top quartile of circle number worked with the nonprofit for only one year. These schools did not see immediate reductions in suspensions but did see reductions in later years.

ii. Implementation Measured By Contract Success

As an alternative definition of implementation, Table 6 shows schools where at least 70 percent of circles result in a contract. There are no effects and a large number of positive coefficients when looking at all students, contrary to the main results and those for schools in the top and bottom quartiles of circle number. The pattern of results for students with prior suspension are similar to the results for schools in the bottom quartile of circle number, with a concentration of significant effects in the first year of implementation. Here, however, coefficients are both larger and more precisely estimated. All analyses pass the parallel trends test.

The larger and more precisely estimated coefficients seen above could reflect the fact that schools which emphasize completing the circle process are also schools that are more successfully implementing restorative practices. Alternatively, it is plausible that these larger impacts, seen only for students who are the most likely to be suspended, reflect the mechanical substitution of circles for suspension. A third possibility is that schools where many circles result in contracts may have a population of students that is both more inclined to complete a circle and more deterred from future misbehavior by restorative practices.

iii. Implementation Measured by Circle Timing.

An additional way we can categorize schools is by their use of prevention circles. Table 7 shows the effects for schools with many prevention circles and Table 8 shows the effects for schools with few prevention circles. For schools with many prevention circles, we see almost no effects for either student sample and two analyses fail a parallel trends test. The results for the schools with few prevention circles generally agree with the main results, but over half have pre-trends, and the pre-trends are about 70 percent of the size of the coefficients, leading to considerable doubt about their causal interpretation.

iv. Alternative Definitions of Treatment.

Throughout this paper, we have defined treated students as those who attended a school in its first year of restorative practices use, and treated schools as those that partnered with the nonprofit. Next, we look at other definitions of treatment.[22]

[22] An additional concept of treatment considered was only including treated and comparison students who remained at the same school throughout all of treatment in the sample. This analysis is not presented below because almost none of these analyses passed the parallel trends tests, although in general the findings otherwise agreed with the main results.

We limit the group of treated schools to those that both partner with the nonprofit *and* self-report the use of restorative practices to *The New Orleans' Parents' Guide*. This analysis, displayed in Table 10, is similar to the main results, although fewer coefficients are significant and effects tend to be concentrated in the first treatment year. All analyses pass the parallel trends test.

In all prior analyses, we have defined "treated" students as those who attended a school partnering with the nonprofit in the first year of implementation, regardless of whether they switched schools in later years. This definition allows us to ignore the possibility that restorative practices impact school transfer decisions. This assumption makes sense if we assume that student movement between schools is endogenous to treatment – that is, that students who remain at a restorative practices school or an exclusionary discipline school may be different than students who leave these schools. On the other hand, it is possible that these student groups do not systematically differ, making student movement exogenous to treatment. In this case, students who remain at a school may have the most undiluted experience and the largest likely effects. Because we cannot distinguish whether student movement is exogenous or endogenous, we present main results where we assume student movement is endogenous, but also present alternative estimates assuming exogeneity. These results, presented in Table 11, consider only students who remain at their original restorative practices school in year *t* as treated in year *t*. These results are presented in Table 11. Results are similar to the main results, although significant coefficients are larger, more precisely estimated, and concentrated in the third year.

v. Specific and Non-Specific Infractions

Following Hernández (2019), we assume specific incidents, like possessing a firearm, are more likely to be reported consistently than ambiguous, non-specific offenses, such as willful

disobedience. One reason to look at this margin of infraction type, in addition to violent infractions, is that specific and violent offenses may overlap ("fights while under school supervision") but some violent offenses are non-specific ("misappropriate with violence") and some specific offenses are non-violent ("leaves school or classroom without permission"). Like violent offenses, specific offenses are expected to be reported with greater fidelity. Looking at this margin of infractions gives us another way to examine whether the estimated effects reflect changes in reporting behavior or student behavior.

Table 12 presents results with all suspensions and those for specific and non-specific infractions. We see reductions in non-specific offenses for the overall population and reductions in specific offenses for the subsample of students previously suspended. This is strikingly similar to the main results, where the subsample of students previously suspended experienced reductions in the type of infraction most likely to be reported with fidelity (violent infractions) while students overall experienced reductions in the type of infraction less likely to be reported with fidelity (non-violent infractions). The reduction in specific offenses for the previously suspended subsample reinforces the earlier finding for violent offenses for this subsample: restorative practices seem to be altering the behavior of students that are the most likely to experience them, but also altering reporting behavior for students overall. All analyses pass the parallel trends test.

vi. Academic Outcomes

This study focuses on the effect of restorative practices on discipline outcomes, but this intervention could also affect academic outcomes. We might expect restorative practices to increase the achievement of students who would otherwise be suspended because they do not miss days of learning. It is also possible that restorative practices create spillover effects for these

students' peers through more disrupted classroom environments and lower these peers' achievement. Other research consistently finds negative spillovers on peers from disruptive students on a variety of academic and behavioral outcomes (Hoxby, 2000; Carrell & Hoekstra, 2010; Gottfried, 2013; Fletcher, 2010). In addition, all students' achievement might suffer because instruction time is diverted to restorative practices and away from academic subjects.

Table 13 presents results for academic achievement for both students who were suspended prior to treatment and for students who were not. We present these groups, rather than the overall population, to better address spillover effects. Three of the 12 coefficients for the sample of students not suspended are both negative and marginally significant. These coefficients range from 9 to 15 percent of a standard deviation. For the sample of students who had been suspended prior to treatment, we see an increase in science scores in the second year of treatment but no other significant effects. For both samples of students, the coefficient direction is inconsistent with no evidence of positive or negative effects. All analyses pass the parallel trends test.

Overall, the point estimates are a plausible size given past research on the effects of classroom disruption, reinforcing the validity of our identification strategy. Moreover, the point estimates and mixed results are consistent with the pattern of academic effects found by Augustine et al. (2018).

VIII. Qualitative Evidence.

Our quantitative analysis provides causal effects of restorative practices, but it cannot answer *why* or *how* the intervention worked. Qualitative data can add context to the quantitative findings, in particular to two important questions: (1) What changes did restorative practices cause on-the-ground? (2) How does implementation differ between schools? To explore these

questions, we draw on interviews at two local high schools within the quantitative data set where all interviewees experienced a transition from zero-tolerance discipline to a discipline environment incorporating restorative practices.

Within the two schools, we conducted 24 one-on-one semi-structured interviews. Participants were recruited using purposive stratified sampling. Participants from the two high schools corresponding with the quantitative dataset included 11 faculty members and 13 students Interviewed faculty members included administrators, support staff members, and teachers at both schools. Interviews were recorded and then transcribed by the interviewer with the assistance of Otter.ai voice recognition software. Transcriptions were coded line-by-line in Atlas.ti software, using process coding. These codes were sorted by similarity to create categories, and categories were then sorted in a tertiary coding process where themes for students and faculty members emerged. Themes and categories were then compared to determine similarities and differences in responses between faculty members and students overall and between these groups across schools.

The two high schools incorporated restorative practices into the school environment in different ways. One of the high schools operated on a whole-school model of restorative practices, integrating practices like informal community-building circles and restorative conversations[23] into everyday activities in all school-related environments, and rarely used exclusionary discipline. The other high school operated on a hybrid model, using both restorative and exclusionary practices. The school using the hybrid model paired restorative approaches

[23] Restorative conversations are a more informal, unplanned reaction to a behavioral incident, where a teacher and student think through the behavioral incident, what harm it caused, how to repair the harm, and what may have triggered the behavior (CPS Restorative Practices Guide and Toolkit, 2020).

with a discipline ladder,[24] where consequences ranged from demerits for minor infractions (like willful disobedience) to suspensions for major infractions (like fighting). Teachers and administrators at the hybrid school had some discretion when deciding whether to use restorative practices or the discipline ladder when a behavioral infraction occurred. A failure to fulfill an agreement reached through a restorative circle could lead to suspension at either school.

Interviews at the two schools led to three main insights. First, most participants (9 out of 11 faculty members and 12 out of 13 students) agreed that restorative practices contributed to positive changes in their school environment. Second, even with ample time, not all stakeholders bought into restorative practices. Third, implementation varied between the two schools and was affected by external factors, causing restorative practices' perceived efficacy to vary between the schools.

i. Commonalities Between Schools.

Of the 21 participants who perceived a positive change, almost all emphasized an improvement in intra-school relationships. Relationships are central to restorative practices (e.g., Knight & Wadhwa, 2014; Short et al., 2018), with the explicit goal being the restoration of damaged relationships. At both schools, student and faculty linked this improvement in relationships to an increase in feelings of understanding, belonging, and safety. As one faculty member said, "…anything that helps build those relationships is gonna help build safety and security, and so having the restorative process puts a premium on those relationships." Students at both schools reported feeling more respected when allowed to participate in restorative

[24] According to the discipline ladder, an accumulation of demerits can negatively affect a student's grade, and can lead to detention; an accumulation of detentions can lead to a suspension.

practices. Four students directly connected this heightened feeling of respect with improved classroom management and a more focused learning environment.

Moreover, participants at both schools perceived lower rates of exclusionary discipline as a major benefit of restorative practices, aligning with the quantitative findings. One faculty member in the hybrid setting noted, "our suspensions have greatly decreased and our restorative approaches have greatly increased," implying a strong shift in discipline philosophy. A student in the whole-school setting said, "students don't get suspended or expelled unless it's, like, something serious," meaning weapon or drug possession.

These positive effects were not immediate. Faculty members from both schools agreed that the faculty development enabling restorative practices takes time, and even once staff were trained, it took time to become comfortable implementing restorative practices. Two faculty members also talked about the high time commitment, but both felt that the time commitment paid off by making their jobs easier in the long run. Another faculty member acknowledged that restorative practices are difficult to learn in the short-term, and that mastery requires consistent opportunities for practice and application. Some students indicated hesitancy about restorative practices because they were unfamiliar with them, even though some of these students believed restorative practices could lead to a positive outcome. One faculty member noted that students taking time to be emotionally comfortable with restorative practices was to be expected: "Because the whole point is you have to go through your own learning curve, right?"

ii. Differences Between Schools

Although interviews at the schools revealed commonalities, there were also significant differences. Faculty and students differed in their experiences and perception of restorative practices, including relationship stability. In the hybrid setting, high rates of faculty turnover

resulted in a loss of supportive relationships for students. All faculty members expressed frustration at the high turnover and frequent changes in leadership structure, which they felt damaged the relationships at the core of restorative practices. Moreover, turnover made it much more difficult to commit time to proper implementation due to increased workloads and loss of collegial support. Turnover further resulted in the introduction of new faculty members who were not trained in restorative practices.

This stood in stark contrast to the whole-school setting, where two faculty members and two students expressed the belief that every student at the school had an adult they could talk to. Two students specifically chose to attend the school for its friendly and welcoming environment after experiencing bullying at a previous school, and one student expressed feeling like faculty really wanted them there.

The two schools also differed in the level of resources available to implement restorative practices, including consistent and frequent professional development and trainings. There were professional development and training sessions on restorative practices available to faculty in the hybrid setting, but not all faculty interviewed reported participating. Many of the faculty at the hybrid school reported not using restorative practices themselves, and some were unclear on what restorative practices entail. One faculty member expressed frustration at what they perceived as a lack of guidance and support in implementing restorative practices. All of the faculty in the whole-school setting reported participating in multiple training and professional development sessions on restorative practices. They also reported being assigned readings about restorative practices and related topics, and having opportunities to discuss the readings with colleagues.

Even when schools undergo the same intervention (partnering with the nonprofit), they adapt restorative practices to their own discipline models in different ways and invest in it at different levels. This point is intrinsically related to the timing it takes for restorative practices to have an effect and the positive benefits that are reaped. Guckenberg et al. (2015) reported that over half of practitioners surveyed indicated "lack of staff buy-in" as a barrier to successful implementation, and also reported negative effects of staff turnover on implementation. Augustine et al. (2018) found that teacher confidence in using restorative practices, perceived impact on handling conflict, and the use of impromptu circle elements all increased from the first year of implementation to the second. This finding emphasizes the importance of staff training and continuity. Given the centrality of relationships to restorative practices (Acosta et al., 2016; Knight & Wadhwa, 2014; Zehr, 2015b), it is not surprising that the disruption of relationships through staff turnover complicates implementation.

IX. Conclusion.

The frequent use of exclusionary school discipline in the United States is a source of considerable debate, with many believing traditional school discipline is failing students. Alternative discipline systems that can replace or be combined with exclusionary discipline are one way to reduce suspension rates. Restorative practices represent an alternative that aims to work with students to restore relationships when harm has been done rather than punish students.

Prior research has found that the use of restorative practices results in fewer student suspensions, but there are few quantitative studies that use rigorous methodology. We add to this body of work by considering the effect of restorative practices on student suspensions in a mixed methods study using an innovative quantitative design, unique data set and qualitative evidence in the same setting. We observe multiple measures of restorative practices use (including school

self-reporting and circle usage). Moreover, we are the first to look at effect heterogeneity by previous suspension.

When we look at the entire population of students, we see very little effect of restorative practices on discipline outcomes. However, for the subsample of students with previous suspensions, we find large declines for suspensions for violent behavior, which is more likely to be reported with fidelity than suspensions for non-violent behavior. Effects are similar even when using alternate definitions of treatment or of treated schools.

In interviews, the majority of staff and students also reported strengthened intra-school relationships and positive changes to school discipline policy (echoing the quantitative results). Both the qualitative and quantitative findings are more mixed on restorative practices' effects on academics, as measured by test score changes and the number of participants who believed restorative practices improved classroom management.

A large strength of this paper is the detailed quantitative data that allows us to look at how different schools implement restorative practices through the use of restorative circles. We find an interesting pattern of results, where the largest effects are seen at schools with a larger percent of circles that result in contracts. This pattern of results could reflect that these schools focus implementation where it will have the largest impact, while other schools make changes that may not result in decreases in exclusionary discipline. Alternatively, this pattern could be the result of different student populations or mechanical substitution of circles for suspensions.

Qualitative evidence also points to the importance of other implementation issues. Foremost, schools differ in either using restorative practices as an add-on to a traditional discipline system or making restorative practices a central part of school culture. Additionally, schools differ along the extensive margin of staff training (*whether* all staff were trained in

restorative practices) and the intensive margin of staff training (how much support was provided to learn and perform restorative practices), as well as the importance of outside school-level factors, like resources and teacher turnover.

While this study builds upon prior work on restorative practices because we can measure circle-level implementation, it has one large limitation. Our circle-level data only address circles facilitated by the nonprofit – school-run circles are not observed. Future work would benefit greatly from discipline data that includes the consequences of all behavioral infractions, be it referral, exclusionary discipline, or a school- or nonprofit-facilitated circle.

Taken with the other emerging research, this paper suggests that restorative practices are a worthwhile alternative to exclusionary discipline, especially considering the negative consequences of suspension.

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Figures.

Figure 1. Possible outcomes upon restorative justice referral.

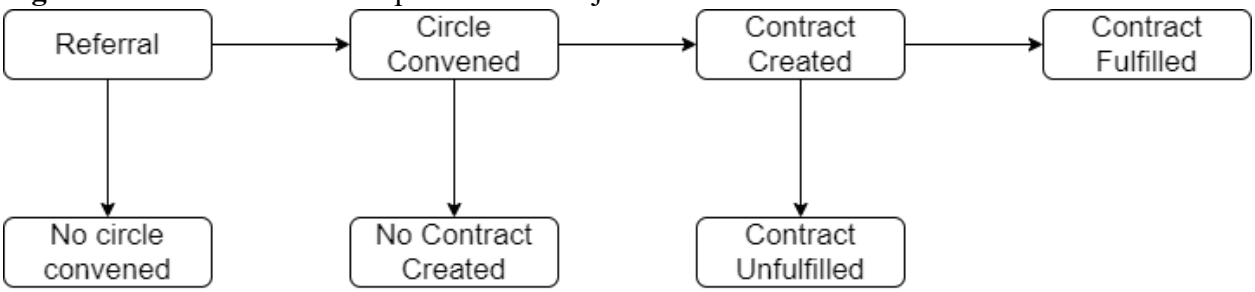
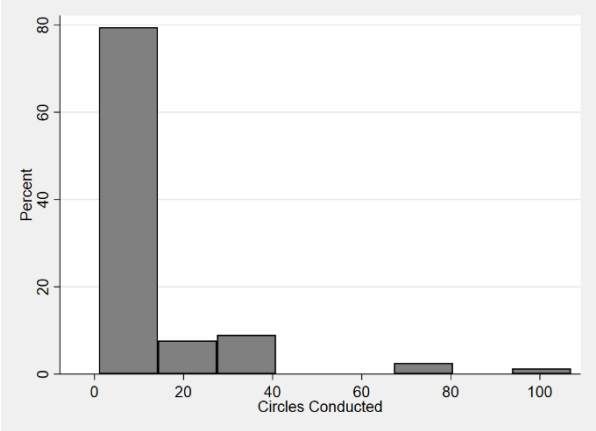
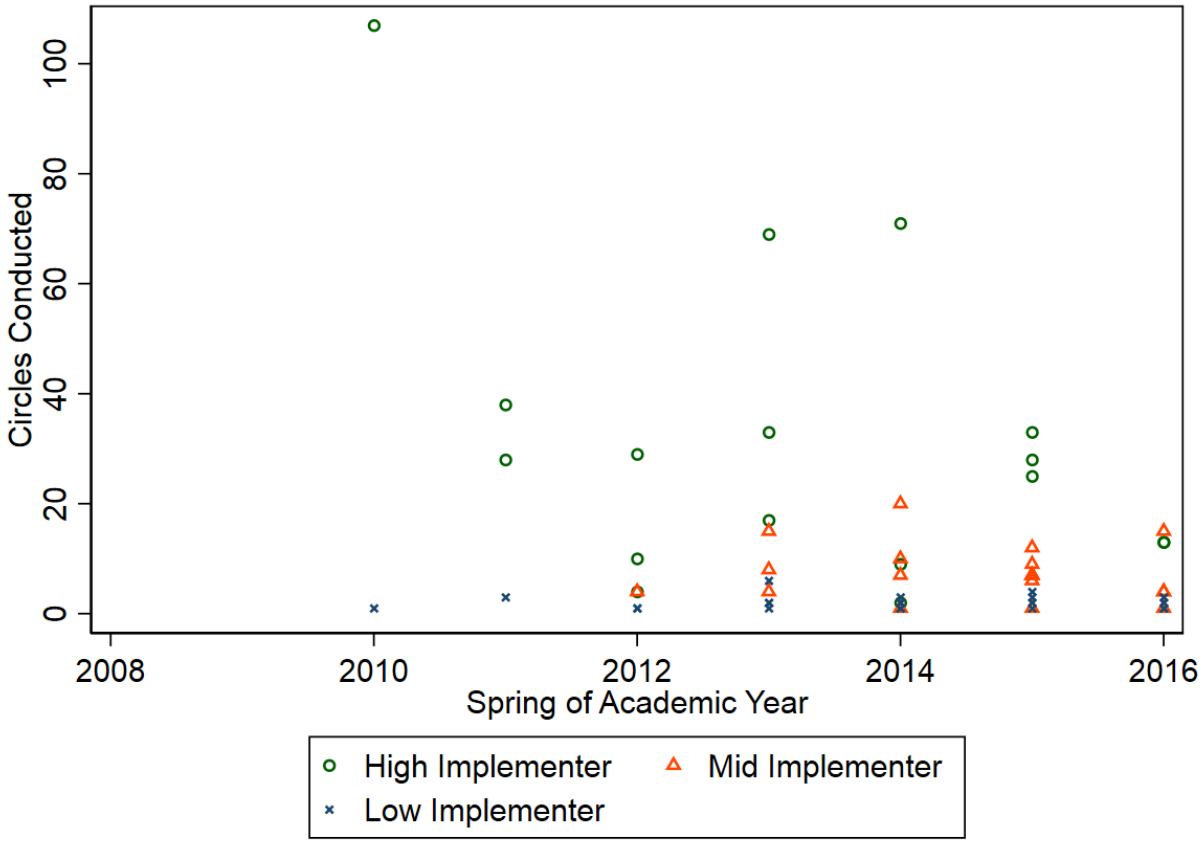


Figure 2. Circle implementation measures.



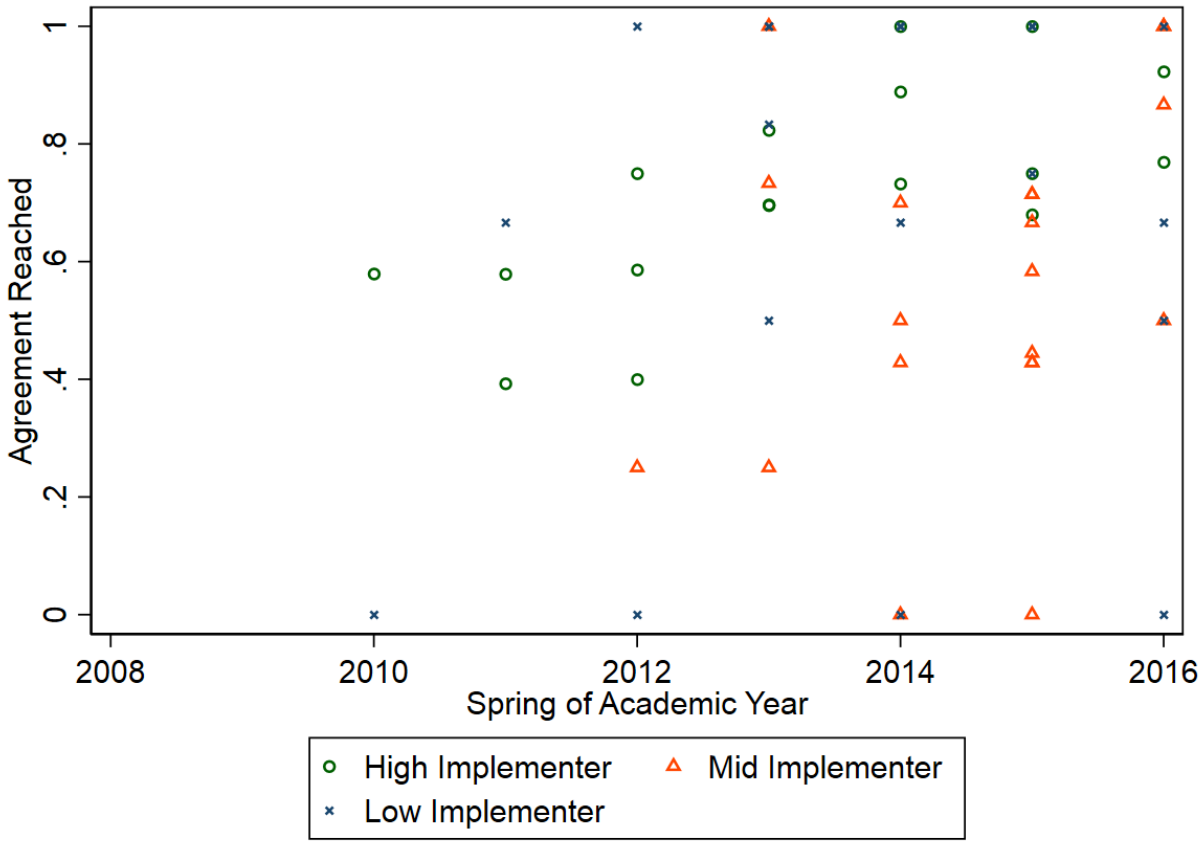
Note: Histograms use the number of circles conducted by schoolyear.

Figure 3. Circle implementation measures by implementer type



Notes: Each point represents a school in New Orleans partnered with the nonprofit during a given year. Schools represented are those in the analytical sample.

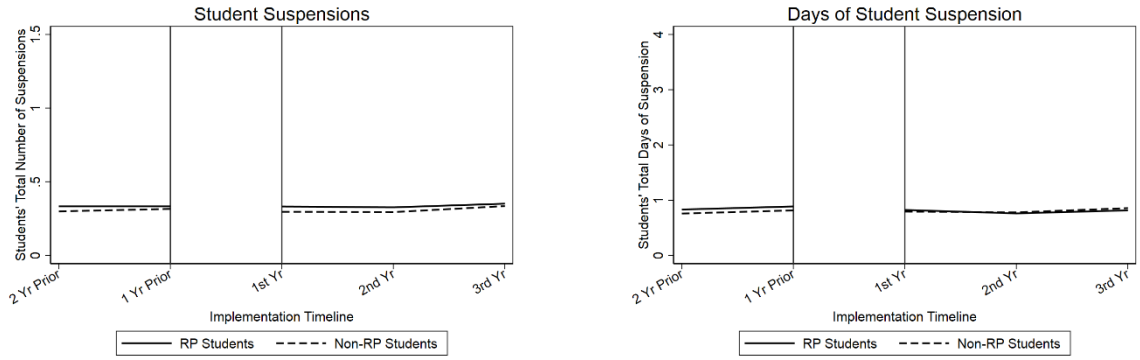
Figure 4. Percent of circles that result in resolution in a given year by implementer type



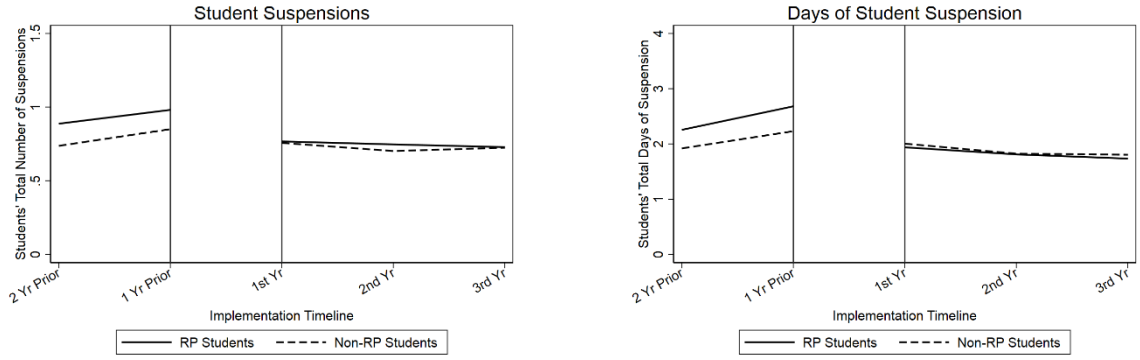
Notes: Each point represents a school in New Orleans partnered with the nonprofit during a given year. Schools represented are those in the analytical sample.

Figure 5. Effects of Restorative Practices on Student Discipline Outcomes – All Schools.

Panel A. All students.



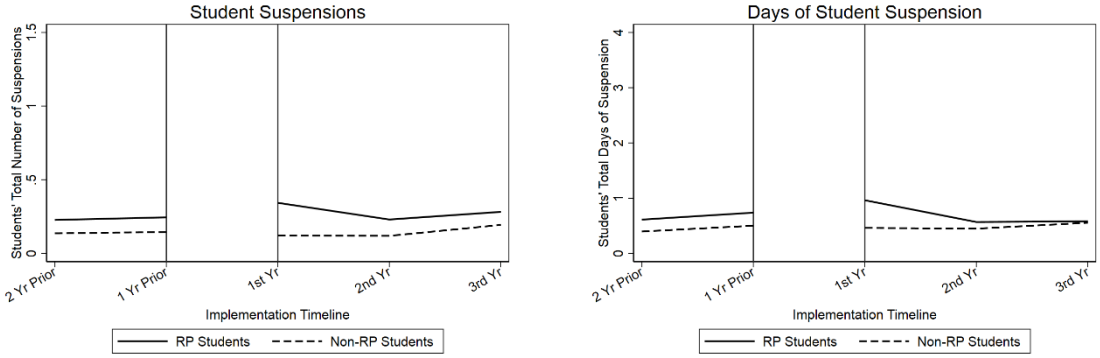
Panel B. Students previously suspended.



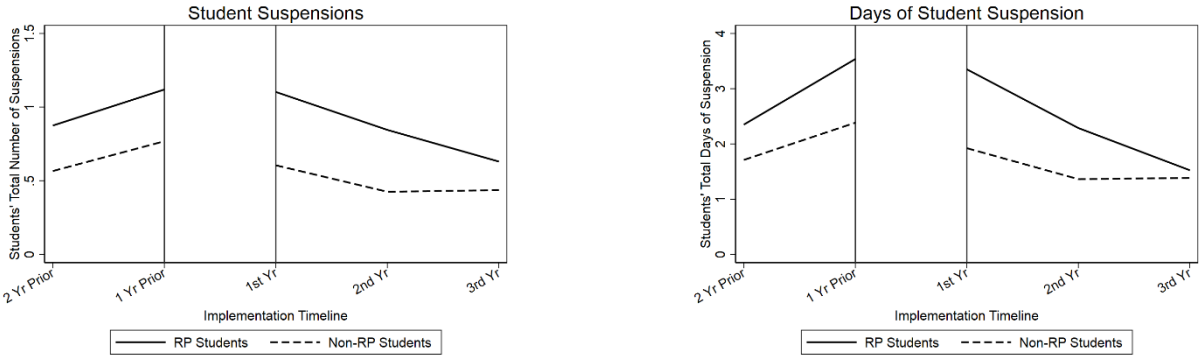
Notes: Estimates are based on equation (1); Table 3 provides the equivalent average treatment effect estimates. "RP Students" are students who attended a restorative practices school; "Non-RP students" are matched students who attended a comparison school.

Figure 6. Effects of Restorative Practices on Student Discipline Outcomes – Schools in Top Quartile of Circle Use

Panel A. All students.



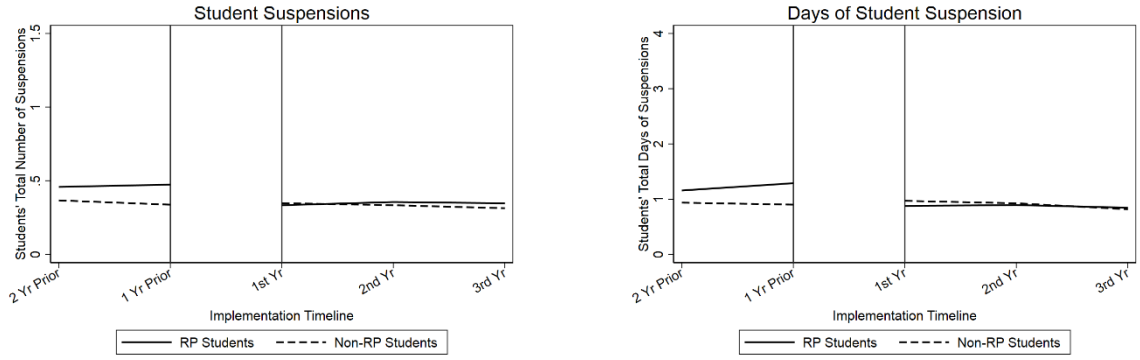
Panel B. Students previously suspended.



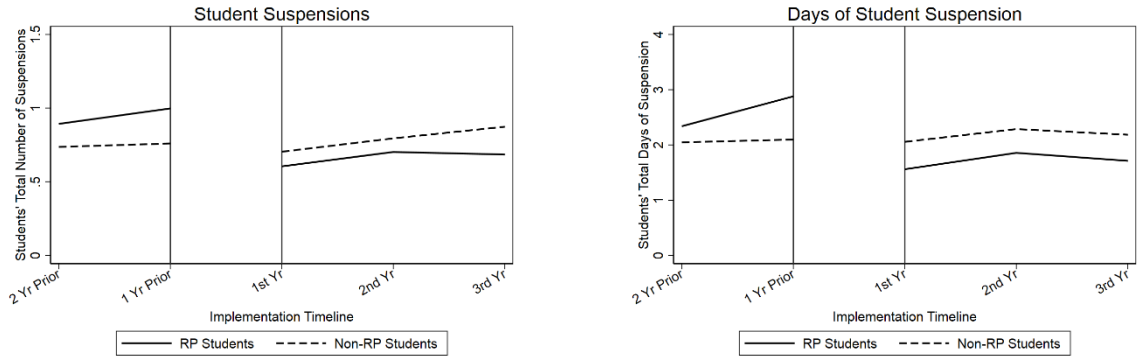
Notes: Estimates are based on equation (1); Table 3 provides the equivalent average treatment effect estimates. "RP Students" are students who attended a school in the top quartile of circles; "Non-RP students" are matched students who attended a comparison school.

Figure 7. Effects of Restorative Practices on Student Discipline Outcomes – Schools in the Bottom Quartile of Circle Use

Panel A. All students.



Panel B. Students previously suspended.



Notes: Estimates are based on equation (1); Table 3 provides the equivalent average treatment effect estimates. "RP Students" are students who attended a school in the bottom quartile of circles; "Non-RP students" are matched students who attended a comparison school.

Tables.

Table 1.A. Student demographics prior to restorative justice adoption.

	Year Prior to Restorative Practices Partnership Adoption		
	1	2	3
	Restorative Practices	Comparison (All)	Comparison (Matched)
Outcome Variables			
Total Suspensions	0.32	**0.45**	**0.39**
Total Days of Discipline	0.88	**1.15**	**1.03**
Math	-0.65	**-0.25**	**-0.54**
ELA	-0.62	**-0.28**	-0.54
Science	-0.71	**-0.28**	-0.57
Social Studies	-0.55	**-0.25**	**-0.46**
Control Variables			
Male	0.52	**0.51**	0.52
Black	0.80	**0.64**	0.79
Other Race	0.11	**0.13**	0.11
FRL	0.89	**0.77**	**0.87**
ELL	0.07	0.07	0.07
Special Needs	0.09	0.09	0.10

Notes: The reported means are from 2009-2010 school year – the last pre-treatment period – for all groups. The restorative practices group includes data for the 10,382 treated students who are matched to a comparison student. The comparison-all column includes data for the 73,322 possible comparison students. The comparison-matched group includes the 9,187 students matched to a restorative practices student. Bolded numbers indicate that a difference is significant between the treatment and comparison group at the 5% level.

Table 1.B. Student demographics prior to restorative justice adoption, for sample of students with prior suspensions.

	Year Prior to Restorative Practices Partnership Adoption		
	1	2	3
	Restorative Practices	Comparison (All)	Comparison (Matched)
Outcome Variables			
Total Suspensions	0.50	**0.83**	**0.62**
Total Days of Discipline	1.41	**2.14**	**1.66**
Math	-0.72	**-0.46**	**-0.59**
ELA	-0.70	**-0.49**	**-0.60**
Science	-0.76	**-0.48**	-0.69
Social Studies	-0.61	**-0.44**	-0.60
Control Variables			
Male	0.58	0.57	0.57
Black	0.84	**0.72**	0.83
Other Race	0.09	0.09	0.09
FRL	0.91	**0.82**	0.91
ELL	0.06	**0.05**	**0.05**
Special Needs	0.09	**0.10**	0.09

Notes: The reported means are from 2009-2010 school year – the last pre-treatment period – for all groups. The restorative practices group includes data for the 6,304 treated students who were suspended prior to treatment and are matched to a comparison student. The comparison-all column includes data for the 39,255 possible comparison students. The comparison-matched group includes the 5,772 students matched to a restorative practices student. Bolded numbers indicate that a difference is significant between the treatment and comparison group at the 5% level.

Table 1.C. Student demographics prior to restorative justice adoption, for school populations prior to adoption.

	Year Prior to Restorative Practices Partnership Adoption	
	1	2
	Restorative Practices	Comparison (All)
Outcome Variables		
Total Suspensions	0.60	**0.39**
Total Days of Discipline	1.45	**1.00**
Math	-0.39	**-0.26**
ELA	-0.40	**-0.28**
Science	-0.39	**-0.28**
Social Studies	-0.30	**-0.25**
Control Variables		
Male	0.51	0.52
Black	0.68	0.66
Other Race	0.18	**0.13**
FRL	0.75	**0.81**
ELL	0.10	**0.07**
Special Needs	0.08	0.09

Notes: The reported means are from 2009-2010 school year – the last pre-treatment period – for all groups. The restorative practices group includes data for all 13,158 students attending a future treatment school. The comparison-all column includes data for the 55,693 students attending a future comparison school. Bolded numbers indicate that a difference is significant between the treatment and comparison group at the 5% level.

Table 2.A. Data available for schools utilizing restorative practices.

Number of Schools	Treatment Period				
	t-2	**t-1**	**T**	**t+1**	**t+2**
11	X	X	X	X	X
8	X	X	X	X	
7	X	X	X		
1		X	X	X	X
2		X	X	X	
4			X	X	X
1			X	X	

Table 2.B. Data available for comparison schools.

Number of Schools	Treatment Period				
	t-2	**t-1**	**T**	**t+1**	**t+2**
49	X	X	X	X	X
7	X	X	X	X	
0	X	X	X		
10		X	X	X	X
1		X	X	X	
2			X	X	X
1			X	X	

Notes: The first column reports the number of restorative practices or comparison schools in total. Each row indicates the number of years of data the schools were opened. For example, the first row indicates that 11 schools in total had data two years pre-treatment (t-2) all the way through three years post-treatment (t+2), where t denotes the first year of partnering with the restorative practices nonprofit (or the first year the matched school partnered with the nonprofit, for comparison schools). The second row indicates that 8 restorative practices schools had data for all years *except* three years post-treatment (t+2), and so on.

Table 3. Event study of restorative practices on student discipline outcomes for all schools.

	All Infractions		Non-Violent Infractions		Violent Infractions	
	Number of Suspensions	Days of Suspension	Number of Suspensions	Days of Suspensions	Number of Suspensions	Days of Suspension
Panel A: All Students						
RP Student	0.015	0.027	0.013	0.018	0.005	0.016
	(0.025)	(0.064)	(0.021)	(0.046)	(0.010)	(0.035)
RP*1 Year Prior	-0.043	-0.055	-0.031	-0.074	-0.010	0.028
	(0.033)	(0.082)	(0.027)	(0.056)	(0.013)	(0.051)
RP*1st Treatment Year	-0.030	-0.119	-0.028	-0.136	-0.002	0.013
	(0.050)	(0.123)	(0.037)	(0.088)	(0.020)	(0.063)
RP*2nd Treatment Year	-0.040	-0.145	-0.023	-0.077	-0.018	-0.077
	(0.044)	(0.098)	(0.041)	(0.076)	(0.017)	(0.057)
RP*3rd Treatment Year	-0.070*	-0.204	-0.054*	-0.155*	-0.014	-0.047
	(0.037)	(0.124)	(0.028)	(0.080)	(0.020)	(0.076)
N	78,308	78,308	78,308	78,308	78,308	78,308
Panel B: Students with Prior Suspension						
RP Student	0.076	0.166	0.016	-0.009	0.070***	0.207**
	(0.052)	(0.169)	(0.044)	(0.127)	(0.020)	(0.083)
RP*1 Year Prior	-0.037	0.077	0.011	0.069	-0.050	0.021
	(0.066)	(0.217)	(0.051)	(0.140)	(0.034)	(0.134)
RP*1st Treatment Year	-0.180*	-0.477*	-0.083	-0.296	-0.097**	-0.194
	(0.105)	(0.284)	(0.079)	(0.190)	(0.044)	(0.170)
RP*2nd Treatment Year	-0.165	-0.432*	-0.042	-0.095	-0.125***	-0.351***
	(0.116)	(0.251)	(0.110)	(0.201)	(0.035)	(0.125)
RP*3rd Treatment Year	-0.169*	-0.429	-0.093	-0.187	-0.080**	-0.272*
	(0.087)	(0.260)	(0.069)	(0.189)	(0.039)	(0.148)
N	24,640	24,640	24,640	24,640	24,640	24,640

Notes. Sample includes matched treated students at any restorative practices schools and their comparison student matches. Each cell represents a separate difference-in-difference regression with estimation at the student-level. *RP Student* is an indicator for if a student ever attends a restorative practices school. The average treatment effects of restorative practices on discipline outcomes are given by the coefficients on *RP*Treatment Year*, the vector β_r from equation (1). All models include additional student-level controls for prior achievement, gender, race, special needs status, and free- and reduced-lunch status. Standard errors are clustered at the school level. *** $p<0.01$, ** $p< 0.05$, * $p <0.1$.

Table 4. Event study of restorative practices on student discipline outcomes for schools in the top quartile of circle number.

	All Infractions		Non-Violent Infractions		Violent Infractions	
	Number of Suspensions	Days of Suspension	Number of Suspensions	Days of Suspensions	Number of Suspensions	Days of Suspension
Panel A: All Students						
RP Student	0.103**	0.260**	0.074**	0.143*	0.039*	0.139*
	(0.047)	(0.131)	(0.033)	(0.085)	(0.020)	(0.071)
RP*1 Year Prior	-0.012	-0.057	0.013	-0.013	-0.026*	-0.047
	(0.042)	(0.108)	(0.037)	(0.096)	(0.015)	(0.057)
RP*1st Treatment Year	0.079	0.060	0.066	0.075	0.016	0.001
	(0.069)	(0.158)	(0.050)	(0.105)	(0.025)	(0.078)
RP*2nd Treatment Year	-0.019	-0.198	0.016	-0.028	-0.031	-0.164*
	(0.051)	(0.157)	(0.037)	(0.101)	(0.021)	(0.087)
RP*3rd Treatment Year	-0.062	-0.307	-0.026	-0.153	-0.035	-0.161
	(0.070)	(0.246)	(0.056)	(0.178)	(0.032)	(0.130)
N	20,534	20,534	20,534	20,534	20,534	20,534
Panel B: Students with Prior Suspension						
RP Student	0.285***	0.714**	0.198***	0.512**	0.122**	0.271
	(0.097)	(0.340)	(0.073)	(0.245)	(0.054)	(0.183)
RP*1 Year Prior	0.059	0.403	0.102	0.303	-0.054	0.077
	(0.140)	(0.469)	(0.114)	(0.349)	(0.064)	(0.301)
RP*1st Treatment Year	0.109	0.163	0.154	0.329	-0.039	-0.100
	(0.150)	(0.485)	(0.129)	(0.343)	(0.062)	(0.273)
RP*2nd Treatment Year	0.021	-0.124	0.104	0.184	-0.084	-0.298
	(0.152)	(0.510)	(0.131)	(0.379)	(0.068)	(0.282)
RP*3rd Treatment Year	-0.206*	-0.815*	-0.105	-0.381	-0.110*	-0.473**
	(0.122)	(0.472)	(0.096)	(0.381)	(0.065)	(0.230)
N	4,073	4,073	4,073	4,073	4,073	4,073

Notes. Sample includes matched treated students at restorative practices schools in the top quartile of circle number and comparison student matches. See Table 3 for additional details.

*** $p<0.01$, ** $p< 0.05$, * $p <0.1$

Table 5. Event study of restorative practices on student discipline outcomes for schools in the bottom quartile of circle number.

	All Infractions		Non-Violent Infractions		Violent Infractions	
	Number of Suspensions	Days of Suspension	Number of Suspensions	Days of Suspensions	Number of Suspensions	Days of Suspension
Panel A: All Students						
RP Student	0.060	0.173	0.039	0.087	0.026	0.096
	(0.038)	(0.113)	(0.034)	(0.073)	(0.017)	(0.080)
RP*1 Year Prior	0.010	0.048	0.025	0.069	-0.010	0.024
	(0.061)	(0.136)	(0.053)	(0.087)	(0.026)	(0.104)
RP*1st Treatment Year	-0.116*	-0.347**	-0.067	-0.252*	-0.049*	-0.103
	(0.060)	(0.166)	(0.048)	(0.128)	(0.026)	(0.076)
RP*2nd Treatment Year	-0.038	-0.201	0.011	-0.022	-0.057**	-0.216**
	(0.058)	(0.149)	(0.051)	(0.103)	(0.026)	(0.097)
RP*3rd Treatment Year	-0.058	-0.168	-0.034	-0.104	-0.027	-0.090
	(0.065)	(0.202)	(0.050)	(0.121)	(0.036)	(0.132)
N	21,061	21,061	21,061	21,061	21,061	21,061
Panel B: Students with Prior Suspension						
RP Student	0.099	0.164	0.004	-0.011	0.100**	0.197
	(0.083)	(0.246)	(0.065)	(0.187)	(0.043)	(0.158)
RP*1 Year Prior	0.037	0.353	0.116	0.451**	-0.072	-0.003
	(0.113)	(0.329)	(0.082)	(0.222)	(0.064)	(0.245)
RP*1st Treatment Year	-0.245**	-0.703**	-0.098	-0.450*	-0.146**	-0.251
	(0.107)	(0.317)	(0.086)	(0.252)	(0.061)	(0.213)
RP*2nd Treatment Year	-0.193	-0.606	0.038	-0.171	-0.240***	-0.478**
	(0.129)	(0.369)	(0.117)	(0.303)	(0.055)	(0.211)
RP*3rd Treatment Year	-0.258*	-0.559	-0.154*	-0.384	-0.123	-0.271
	(0.141)	(0.413)	(0.089)	(0.286)	(0.083)	(0.276)
N	8,111	8,111	8,111	8,111	8,111	8,111

Notes. Sample includes matched treated students at restorative practices schools in the bottom quartile of circle number and comparison student matches. See Table 3 for additional details.

*** $p<0.01$, ** $p< 0.05$, * $p <0.1$

Table 6. Event study of restorative practices on student discipline outcomes for schools in the top quartile of contracts.

	All Infractions		Non-Violent Infractions		Violent Infractions	
	Number of Suspensions	Days of Suspension	Number of Suspensions	Days of Suspensions	Number of Suspensions	Days of Suspension
Panel A: All Students						
RP Student	0.030	0.091	0.032	0.089	0.002	0.007
	(0.031)	(0.087)	(0.026)	(0.056)	(0.014)	(0.049)
RP*1 Year Prior	0.016	0.034	0.010	-0.026	0.007	0.066
	(0.027)	(0.108)	(0.016)	(0.057)	(0.015)	(0.062)
RP*1st Treatment Year	-0.001	-0.066	0.002	-0.057	-0.001	0.002
	(0.031)	(0.114)	(0.024)	(0.073)	(0.015)	(0.062)
RP*2nd Treatment Year	0.026	0.011	0.032	0.016	-0.007	-0.005
	(0.035)	(0.107)	(0.028)	(0.069)	(0.016)	(0.063)
RP*3rd Treatment Year	0.053	0.181	0.038	0.125	0.027	0.092
	(0.048)	(0.196)	(0.032)	(0.122)	(0.030)	(0.094)
N	24,115	24,115	24,115	24,115	24,115	24,115
Panel B: Students with Prior Suspension						
RP Student	0.186**	0.732**	0.100	0.423**	0.100**	0.326*
	(0.093)	(0.286)	(0.078)	(0.179)	(0.041)	(0.169)
RP*1 Year Prior	-0.114	-0.573	-0.057	-0.396	-0.057	-0.159
	(0.106)	(0.399)	(0.082)	(0.262)	(0.053)	(0.208)
RP*1st Treatment Year	-0.253**	-1.079***	-0.121	-0.502**	-0.133**	-0.562**
	(0.115)	(0.382)	(0.081)	(0.224)	(0.055)	(0.217)
RP*2nd Treatment Year	-0.220*	-0.754*	-0.109	-0.503*	-0.116*	-0.239
	(0.126)	(0.429)	(0.092)	(0.295)	(0.061)	(0.207)
RP*3rd Treatment Year	-0.098	-0.545	-0.052	-0.061	-0.039	-0.482*
	(0.122)	(0.476)	(0.082)	(0.287)	(0.073)	(0.268)
N	5,208	5,208	5,208	5,208	5,208	5,208

Notes. Sample includes matched treated students at restorative practices schools in the top quartile of circles that created a contract and comparison student matches. See Table 3 for additional details.

*** $p<0.01$, ** $p< 0.05$, * $p <0.1$

Table 7. Event study of restorative practices on student discipline outcomes for schools in the top quartile of prevention circles.

	All Infractions		Non-Violent Infractions		Violent Infractions	
	Number of Suspensions	Days of Suspension	Number of Suspensions	Days of Suspensions	Number of Suspensions	Days of Suspension
Panel A: All Students						
RP Student	0.077	0.044	0.100**	0.138	-0.017	-0.074
	(0.052)	(0.154)	(0.050)	(0.101)	(0.024)	(0.108)
RP*1 Year Prior	-0.050	0.121	-0.065	-0.009	0.025	0.140*
	(0.104)	(0.184)	(0.089)	(0.157)	(0.024)	(0.080)
RP*1st Treatment Year	-0.005	0.088	-0.023	-0.027	0.028	0.152
	(0.098)	(0.237)	(0.078)	(0.163)	(0.032)	(0.112)
RP*2nd Treatment Year	0.087	0.295	0.022	0.181	0.074**	0.129
	(0.075)	(0.194)	(0.063)	(0.142)	(0.033)	(0.115)
RP*3rd Treatment Year	-0.009	0.117	-0.028	-0.083	0.033	0.231
	(0.084)	(0.306)	(0.085)	(0.238)	(0.050)	(0.165)
N	9,485	9,485	9,485	9,485	9,485	9,485
Panel B: Students with Prior Suspension						
RP Student	-0.092	-0.501	-0.039	-0.164	-0.049	-0.326
	(0.122)	(0.391)	(0.087)	(0.297)	(0.069)	(0.232)
RP*1 Year Prior	0.235	1.100**	0.156	0.623	0.076	0.467
	(0.162)	(0.478)	(0.132)	(0.406)	(0.070)	(0.285)
RP*1st Treatment Year	0.078	0.643	0.058	0.371	0.030	0.307
	(0.187)	(0.630)	(0.144)	(0.412)	(0.085)	(0.371)
RP*2nd Treatment Year	0.172	0.442	0.182	0.463	-0.002	0.022
	(0.168)	(0.539)	(0.150)	(0.456)	(0.079)	(0.308)
RP*3rd Treatment Year	0.154	0.211	0.027	0.068	0.109	0.132
	(0.151)	(0.478)	(0.115)	(0.366)	(0.098)	(0.329)
N	3,459	3,459	3,459	3,459	3,459	3,459

Notes. Sample includes matched treated students at restorative practices schools in the top quartile of prevention circles and their comparison student matches. See Table 3 for additional details.

*** $p<0.01$, ** $p< 0.05$, * $p <0.1$

Table 8. Event study of restorative practices on student discipline outcomes for low prevention schools.

	All Infractions		Non-Violent Infractions		Violent Infractions	
	Number of Suspensions	Days of Suspension	Number of Suspensions	Days of Suspensions	Number of Suspensions	Days of Suspension
Panel A: All Students						
RP Student	0.102***	0.390***	0.059**	0.180***	0.051***	0.235***
	(0.038)	(0.107)	(0.028)	(0.066)	(0.018)	(0.070)
RP*1 Year Prior	-0.078	-0.351**	-0.027	-0.131	-0.053**	-0.215**
	(0.055)	(0.161)	(0.044)	(0.116)	(0.022)	(0.083)
RP*1st Treatment Year	-0.114**	-0.458***	-0.065	-0.300**	-0.055*	-0.203**
	(0.057)	(0.172)	(0.040)	(0.115)	(0.028)	(0.099)
RP*2nd Treatment Year	-0.102**	-0.412***	-0.035	-0.170*	-0.077***	-0.295***
	(0.051)	(0.132)	(0.045)	(0.092)	(0.026)	(0.083)
RP*3rd Treatment Year	-0.149**	-0.581***	-0.092**	-0.323***	-0.063*	-0.301***
	(0.059)	(0.173)	(0.042)	(0.106)	(0.032)	(0.113)
N	24,120	24,120	24,120	24,120	24,120	24,120
Panel B: Students with Prior Suspension						
RP Student	0.300***	1.079***	0.085	0.285	0.227***	0.836***
	(0.097)	(0.291)	(0.081)	(0.221)	(0.042)	(0.157)
RP*1 Year Prior	-0.146	-0.767*	0.045	0.067	-0.189***	-0.758***
	(0.140)	(0.423)	(0.108)	(0.298)	(0.059)	(0.246)
RP*1st Treatment Year	-0.394***	-1.412***	-0.163	-0.695**	-0.233***	-0.775***
	(0.127)	(0.425)	(0.105)	(0.328)	(0.063)	(0.240)
RP*2nd Treatment Year	-0.388***	-1.305***	-0.096	-0.453	-0.301***	-0.919***
	(0.125)	(0.380)	(0.113)	(0.299)	(0.053)	(0.183)
RP*3rd Treatment Year	-0.498***	-1.770***	-0.235**	-0.809**	-0.281***	-1.043***
	(0.150)	(0.438)	(0.110)	(0.320)	(0.071)	(0.260)
N	7,509	7,509	7,509	7,509	7,509	7,509

Notes. Sample includes matched treated students at restorative practices school in the bottom quartile of prevention circles and their comparison student matches. See Table 3 for additional details.

*** $p<0.01$, ** $p< 0.05$, * $p <0.1$

Table 9. Event study of restorative practices on student discipline outcomes for students that remain in same school throughout entirety of treatment.

	All Infractions		Non-Violent Infractions		Violent Infractions	
	Number of Suspensions	Days of Suspension	Number of Suspensions	Days of Suspensions	Number of Suspensions	Days of Suspension
Panel A: All Students						
RP Student	0.035*	0.017	0.029*	0.043	0.007	-0.026
	(0.021)	(0.058)	(0.015)	(0.038)	(0.012)	(0.040)
RP*1 Year Prior	-0.071***	-0.149**	-0.037**	-0.088*	-0.035**	-0.070
	(0.025)	(0.072)	(0.017)	(0.045)	(0.016)	(0.051)
RP*1st Treatment Year	-0.033	-0.080	-0.032	-0.117*	-0.003	0.028
	(0.035)	(0.098)	(0.022)	(0.060)	(0.019)	(0.056)
RP*2nd Treatment Year	-0.062	-0.140	-0.033	-0.069	-0.026	-0.071
	(0.046)	(0.101)	(0.039)	(0.062)	(0.026)	(0.073)
RP*3rd Treatment Year	-0.118**	-0.214	-0.081**	-0.159*	-0.030	-0.054
	(0.056)	(0.159)	(0.040)	(0.095)	(0.031)	(0.099)
N	33,466	33,466	33,466	33,466	33,466	33,466
Panel B: Students with Prior Suspension						
RP Student	0.201***	0.509***	0.091*	0.141	0.130***	0.395***
	(0.064)	(0.165)	(0.046)	(0.117)	(0.038)	(0.116)
RP*1 Year Prior	-0.305***	-0.946***	-0.111	-0.365*	-0.203***	-0.579***
	(0.103)	(0.281)	(0.080)	(0.199)	(0.060)	(0.188)
RP*1st Treatment Year	-0.347***	-0.899**	-0.206**	-0.613**	-0.147**	-0.278
	(0.122)	(0.372)	(0.086)	(0.250)	(0.061)	(0.194)
RP*2nd Treatment Year	-0.407**	-1.226***	-0.163	-0.466	-0.234***	-0.726***
	(0.202)	(0.423)	(0.182)	(0.335)	(0.068)	(0.203)
RP*3rd Treatment Year	-0.571***	-1.311***	-0.294***	-0.591**	-0.267***	-0.724***
	(0.141)	(0.435)	(0.111)	(0.298)	(0.071)	(0.255)
N	7,070	7,070	7,070	7,070	7,070	7,070

Notes. Sample includes matched treated students who remained at a restorative practices school throughout the three years of treatment, and these treated students' comparison student matches. See Table 3 for additional details.

*** $p<0.01$, ** $p< 0.05$, * $p <0.1$

Table 10. Event study of restorative practices on student discipline outcomes for schools that both partner with nonprofit and self-report using restorative practices.

	All Infractions		Non-Violent Infractions		Violent Infractions	
	Number of Suspensions	Days of Suspension	Number of Suspensions	Days of Suspensions	Number of Suspensions	Days of Suspension
Panel A: All Students						
RP Student	0.006	-0.009	0.009	0.009	-0.000	-0.015
	(0.027)	(0.069)	(0.023)	(0.050)	(0.012)	(0.039)
RP*1 Year Prior	-0.032	0.005	-0.022	-0.056	-0.007	0.080
	(0.033)	(0.094)	(0.022)	(0.058)	(0.017)	(0.063)
RP*1st Treatment Year	-0.003	-0.050	-0.004	-0.090	0.004	0.047
	(0.041)	(0.104)	(0.029)	(0.070)	(0.020)	(0.067)
RP*2nd Treatment Year	0.001	-0.046	0.020	-0.015	-0.017	-0.028
	(0.047)	(0.104)	(0.045)	(0.083)	(0.016)	(0.058)
RP*3rd Treatment Year	-0.034	-0.061	-0.024	-0.065	-0.002	0.028
	(0.041)	(0.139)	(0.032)	(0.090)	(0.021)	(0.085)
N	52,792	52,792	52,792	52,792	52,792	(0.085)
Panel B: Students with Prior Suspension						
RP Student	0.112*	0.242	0.062	0.136	0.062**	0.139
	(0.064)	(0.198)	(0.051)	(0.135)	(0.027)	(0.107)
RP*1 Year Prior	-0.124	-0.094	-0.075	-0.154	-0.049	0.090
	(0.086)	(0.267)	(0.055)	(0.150)	(0.049)	(0.177)
RP*1st Treatment Year	-0.173*	-0.463*	-0.064	-0.282*	-0.107**	-0.189
	(0.088)	(0.266)	(0.061)	(0.146)	(0.047)	(0.196)
RP*2nd Treatment Year	-0.139	-0.455	-0.021	-0.193	-0.116***	-0.249
	(0.119)	(0.292)	(0.114)	(0.210)	(0.044)	(0.152)
RP*3rd Treatment Year	-0.153	-0.238	-0.097	-0.108	-0.053	-0.149
	(0.096)	(0.308)	(0.076)	(0.218)	(0.042)	(0.157)
N	14,881	14,881	14,881	14,881	14,881	14,881

Notes: Sample includes matched treated students at a restorative practices school that reported using restorative practices to *The New Orleans Parents' Guide*, and treated students' comparison student matches. See Table 3 for additional details.
*** $p<0.01$, ** $p< 0.05$, * $p <0.1$

Table 11. Event study of restorative practices on student discipline outcomes using alternative definition of treatment.

	All Infractions		Non-Violent Infractions		Violent Infractions	
	Number of Suspensions	Days of Suspension	Number of Suspensions	Days of Suspensions	Number of Suspensions	Days of Suspension
Panel A: All Students						
RP Student	0.009	0.017	0.006	-0.003	0.007	0.030
	(0.022)	(0.054)	(0.019)	(0.041)	(0.008)	(0.029)
RP*1 Year Prior	-0.050	-0.088	-0.030	-0.073	-0.019	-0.012
	(0.036)	(0.082)	(0.027)	(0.058)	(0.013)	(0.045)
RP*1st Treatment Year	-0.041	-0.166	-0.029	-0.140	-0.013	-0.036
	(0.051)	(0.124)	(0.034)	(0.085)	(0.021)	(0.060)
RP*2nd Treatment Year	-0.064	-0.266**	-0.033	-0.122	-0.032	-0.163**
	(0.050)	(0.114)	(0.046)	(0.080)	(0.022)	(0.065)
RP*3rd Treatment Year	-0.158***	-0.463***	-0.080**	-0.212**	-0.076***	-0.274***
	(0.050)	(0.148)	(0.032)	(0.090)	(0.026)	(0.084)
N	78,308	78,308	78,308	78,308	78,308	78,308
Panel B: Students with Prior Suspension						
RP Student	0.035	0.094	0.000	-0.023	0.044***	0.141**
	(0.037)	(0.115)	(0.031)	(0.086)	(0.014)	(0.061)
RP*1 Year Prior	-0.024	0.060	0.016	0.048	-0.040	0.031
	(0.064)	(0.186)	(0.052)	(0.131)	(0.030)	(0.113)
RP*1st Treatment Year	-0.178*	-0.536**	-0.082	-0.334*	-0.094**	-0.209
	(0.099)	(0.263)	(0.070)	(0.174)	(0.042)	(0.157)
RP*2nd Treatment Year	-0.204	-0.744***	-0.060	-0.241	-0.141***	-0.502***
	(0.131)	(0.251)	(0.125)	(0.197)	(0.040)	(0.125)
RP*3rd Treatment Year	-0.371***	-0.996***	-0.174**	-0.452*	-0.196***	-0.602***
	(0.115)	(0.338)	(0.081)	(0.240)	(0.051)	(0.179)
N	24,640	24,640	24,640	24,640	24,640	24,640

Notes. Analysis uses alternative definition of treatment where students are only coded as "treated" in a year if the student is still attending the restorative practices school. See Table 3 for additional details.

*** $p<0.01$, ** $p< 0.05$, * $p <0.1$

Table 12. Event study of restorative practices on student discipline outcomes for all schools, by specificity of discipline infraction.

	All Infractions		Non-Specific Infractions		Specific Infractions	
	Number of Suspensions	Days of Suspension	Number of Suspensions	Days of Suspensions	Number of Suspensions	Days of Suspension
Panel A: All Students						
RP Student	0.015	0.027	0.010	0.020	0.008	0.012
	(0.025)	(0.064)	(0.018)	(0.040)	(0.011)	(0.039)
RP*1 Year Prior	-0.043	-0.055	-0.026	-0.056	-0.015	0.012
	(0.033)	(0.082)	(0.022)	(0.045)	(0.016)	(0.057)
RP*1st Treatment Year	-0.030	-0.119	-0.027	-0.103	-0.004	-0.019
	(0.050)	(0.123)	(0.035)	(0.074)	(0.022)	(0.073)
RP*2nd Treatment Year	-0.040	-0.145	-0.015	-0.048	-0.026	-0.105
	(0.044)	(0.098)	(0.038)	(0.066)	(0.018)	(0.065)
RP*3rd Treatment Year	-0.070*	-0.204	-0.048*	-0.115*	-0.020	-0.085
	(0.037)	(0.124)	(0.027)	(0.069)	(0.024)	(0.088)
N	78,308	78,308	78,308	78,308	78,308	78,308
Panel B: Students with Prior Suspension						
RP Student	0.076	0.166	0.011	-0.036	0.076***	0.235**
	(0.052)	(0.169)	(0.038)	(0.115)	(0.025)	(0.092)
RP*1 Year Prior	-0.037	0.077	-0.002	0.067	-0.037	0.019
	(0.066)	(0.217)	(0.045)	(0.122)	(0.040)	(0.150)
RP*1st Treatment Year	-0.180*	-0.477*	-0.071	-0.171	-0.111**	-0.327
	(0.105)	(0.284)	(0.073)	(0.160)	(0.047)	(0.198)
RP*2nd Treatment Year	-0.165	-0.432*	-0.013	0.016	-0.154***	-0.462***
	(0.116)	(0.251)	(0.104)	(0.194)	(0.041)	(0.164)
RP*3rd Treatment Year	-0.169*	-0.429	-0.091	-0.156	-0.084*	-0.300
	(0.087)	(0.260)	(0.065)	(0.164)	(0.049)	(0.183)
N	24,640	24,640	24,640	24,640	24,640	24,640

Notes. Discipline infractions divided into specific and non-specific infractions, rather than violent and non-violent, as in the main results. See Table 3 for additional details.

*** $p<0.01$, ** $p< 0.05$, * $p <0.1$

Table 13. Event study of restorative practices on student academic outcomes.

	Math	ELA	Science	Social Studies
Panel A: Students with No Prior Suspensions				
RP Student	-0.016	0.029	-0.003	0.098
	(0.040)	(0.042)	(0.059)	(0.059)
RP*1 Year Prior	-0.034	-0.004	0.004	-0.068
	(0.055)	(0.057)	(0.066)	(0.069)
RP*1st Treatment Year	-0.082*	0.032	0.032	0.011
	(0.046)	(0.062)	(0.083)	(0.093)
RP*2nd Treatment Year	-0.077	0.001	0.088	-0.139*
	(0.053)	(0.055)	(0.067)	(0.082)
RP*3rd Treatment Year	-0.053	-0.050	-0.121*	-0.087
	(0.063)	(0.078)	(0.069)	(0.072)
N	8,506	8,525	8,555	6,753
Panel B: Students with Prior Suspension				
RP Student	-0.037	-0.016	-0.044	-0.011
	(0.035)	(0.041)	(0.046)	(0.052)
RP*1 Year Prior	0.045	-0.014	0.076	-0.011
	(0.044)	(0.053)	(0.054)	(0.052)
RP*1st Treatment Year	-0.006	0.051	0.070	-0.050
	(0.052)	(0.056)	(0.077)	(0.035)
RP*2nd Treatment Year	0.001	-0.031	0.104*	-0.042
	(0.046)	(0.067)	(0.060)	(0.045)
RP*3rd Treatment Year	-0.047	-0.019	0.011	-0.047
	(0.061)	(0.060)	(0.065)	(0.039)
N	11,355	11,456	11,320	10,292

Notes. Outcome is student z-score on standardized test. See Table 3 for additional details.
*** $p<0.01$, ** $p< 0.05$, * $p <0.1$

Table A1. Predicted probability student will attend a restorative practices school.

Variable	*With Suspensions*	*Without Suspensions*
Male	0.023***	0.025***
	(0.003)	(0.003)
Black	0.667***	0.669***
	(0.004)	(0.004)
Other Race	0.268**	0.269**
	(0.006)	(0.006)
FRPL	0.120***	0.121***
	(0.003)	(0.003)
Special Education	0.065**	0.067**
	(0.004)	(0.004)
ELL	0.136***	0.136***
	(0.006)	(0.006)
Switched Schools One Year Ago	0.166***	0.166***
	(0.003)	(0.003)
Number of Suspensions Two Years Ago	0.068**	
	(0.003)	
Days of Suspensions Two Years Ago	-0.006***	
	(0.001)	
Number of Suspensions One Year Ago	0.026***	
	(0.002)	
Days of Suspension One Year Ago	-0.004***	
Pseudo R-Squared	0.038	0.038
Observations	1,241,822	1,241,822

Notes: Table shows the coefficients associated with the predicted probability of a student attending a school with or without the suspension covariates included. Analyses are at the student level. Standard errors appear in parentheses. *** $p<0.01$, ** $p< 0.05$, * $p <0.1$

Appendix A. Standardized Differences

Standardized differences allow us to examine the difference in a variable's mean between treatment and comparison groups in units of pooled standard deviation, and thus they are unaffected by a variable's unit of measure. In addition, the standardized difference is unimpacted by sample size, although it can be impacted by population heterogeneity (Austin, 2009). For continuous variables we define standardized differences as

$$(1)\ d = \frac{(|\bar{x}_{tr} - \bar{x}_c|)}{\sqrt{\frac{s_{tr}^2 + s_c^2}{2}}}$$

where $\bar{x}_{tr}$ is the average for the treated group and $\bar{x}_c$ is the average for the comparison group. The standard deviation for the treated group is s_{tr}^2, and the standard deviation for the comparison group is s_c^2.

For dichotomous variables we define the standardized difference as

$$(2)\ d = \frac{|\hat{p}_{tr} - \hat{p}_c|}{\sqrt{\frac{\hat{p}_{tr}(1-\hat{p}_{tr}) + \hat{p}_c(1-\hat{p}_c)}{2}}}$$

where $\hat{p}_{tr}$ and $\hat{p}_c$ are the mean of a variable in the treatment and comparison groups, respectively.

We present standardized statistics for the overall student population in Table A2, and students suspended prior to treatment in Table A3. The only variables where treated and comparison students' standardized difference exceeds 10 (the standard suggested by Normand et al. (2001)), are academic outcomes, which are of secondary interest to this study.

Table A2. Standardized differences for student demographics prior to restorative justice adoption.

	Year Prior to Restorative Practices Partnership Adoption	
	1	2
	Standardized Difference (Pre-Match)	Standardized Difference (Post-Match)
Outcome Variables		
Total Suspensions	12.7	7.2
Total Days of Discipline	8.1	4.6
Math	40.1	12.0
ELA	32.4	8.3
Science	42.7	14.4
Social Studies	29.4	8.9
Control Variables		
Male	1.9	0.1
Black	37.1	2.6
Other Race	7.1	0.4
FRL	31.5	5.1
ELL	1.9	1.1
Special Needs	0.4	1.2

Table A3. Standardized differences for student demographics prior to restorative justice adoption, for sample of students with prior suspensions.

	Year Prior to Restorative Practices Partnership Adoption	
	1	2
	Standardized Difference (Pre-Match)	Standardized Difference (Post-Match)
Outcome Variables		
Total Suspensions	25.7	9.6
Total Days of Discipline	17.9	6.5
Math	40.1	12.0
ELA	19.6	9.7
Science	42.7	14.4
Social Studies	16.3	0.5
Control Variables		
Male	1.2	1.3
Black	28.9	3.7
Other Race	2.3	2.8
FRL	24.0	0.2
ELL	5.0	2.3
Special Needs	5.0	0.2